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(57) Abstract

The present invention relates to peptides which exhibit potent anti-retroviral activity. The peptides of the invention comprise DP178 (SEQ ID: 1) peptide corresponding to amino acids 638 to 673 of the HIV-1_{LAI} gp41 protein, and fragments, analogs and homologs of DP178. The invention further relates to the uses of such peptides as inhibitory of human and non-human retroviral, especially HIV, transmission to uninfected cells.

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**METHODS AND COMPOSITIONS FOR INHIBITION OF MEMBRANE
FUSION-ASSOCIATED EVENTS, INCLUDING HIV TRANSMISSION**

This is a Continuation-In-Part of Serial No. 08/360,107 filed December 20, 1994, which is a
5 Continuation-In-Part of Serial No. 08/255,208 filed June 7, 1994, which is a Continuation-In-Part of Serial No. 08/073,028 filed June 7, 1993, each of which is incorporated herein by reference in its entirety. This invention was made with Government
10 support under Grant No. AI-30411-02 awarded by the National Institutes of Health. The Government has certain rights in the invention.

1. INTRODUCTION

15 The present invention relates, first, to DP178 (SEQ ID NO:1), a peptide corresponding to amino acids 638 to 673 of the HIV-1_{LAI} transmembrane protein (TM) gp41, and portions or analogs of DP178 (SEQ ID NO:1), which exhibit anti-membrane fusion capability,
20 antiviral activity, such as the ability to inhibit HIV transmission to uninfected CD-4⁺ cells, or an ability to modulate intracellular processes involving coiled-coil peptide structures. Further, the invention relates to the use of DP178 (SEQ ID NO:1) and DP178
25 portions and/or analogs as antifusogenic or antiviral compounds or as inhibitors of intracellular events involving coiled-coil peptide structures. The present invention also relates to peptides analogous to DP107 (SEQ ID NO:25), a peptide corresponding to amino acids
30 558 to 595 of the HIV-1_{LAI} transmembrane protein (TM) gp41, having amino acid sequences present in other viruses, such as enveloped viruses, and/or other organisms, and further relates to the uses of such peptides. These peptides exhibit anti-membrane fusion
35 capability, antiviral activity, or the ability to

modulate intracellular processes involving coiled-coil peptide structures. The present invention additionally relates to methods for identifying compounds that disrupt the interaction between DP178 and DP107, and/or between DP107-like and DP178-like peptides. Further, the invention relates to the use of the peptides of the invention as diagnostic agents. For example, a DP178 peptide may be used as an HIV subtype-specific diagnostic. The invention is demonstrated, first, by way of an Example wherein DP178 (SEQ ID:1), and a peptide whose sequence is homologous to DP178 are each shown to be potent, non-cytotoxic inhibitors of HIV-1 transfer to uninfected CD-4⁺ cells. The invention is further demonstrated by Examples wherein peptides having structural and/or amino acid motif similarity to DP107 and DP178 are identified in a variety of viral and nonviral organisms, and in examples wherein a number of such identified peptides derived from several different viral systems are demonstrated to exhibit antiviral activity.

2. BACKGROUND OF THE INVENTION

2.1 MEMBRANE FUSION EVENTS

Membrane fusion is a ubiquitous cell biological process (for a review, see White, J.M., 1992, Science 258:917-924). Fusion events which mediate cellular housekeeping functions, such as endocytosis, constitutive secretion, and recycling of membrane components, occur continuously in all eukaryotic cells.

Additional fusion events occur in specialized cells. Intracellularly, for example, fusion events are involved in such processes as occur in regulated exocytosis of hormones, enzymes and neurotransmitters.

Intercellularly, such fusion events feature prominently in, for example, sperm-egg fusion and myoblast fusion.

5 Fusion events are also associated with disease states. For example, fusion events are involved in the formation of giant cells during inflammatory reactions, the entry of all enveloped viruses into cells, and, in the case of human immunodeficiency virus (HIV), for example, are responsible for the virally induced cell-cell fusion which leads to cell
10 death.

2.2. THE HUMAN IMMUNODEFICIENCY VIRUS

The human immunodeficiency virus (HIV) has been implicated as the primary cause of the slowly
15 degenerative immune system disease termed acquired immune deficiency syndrome (AIDS) (Barre-Sinoussi, F. et al., 1983, Science 220:868-870; Gallo, R. et al., 1984, Science 224:500-503). There are at least two distinct types of HIV: HIV-1 (Barre-Sinoussi, F. et al.,
20 et al., 1983, Science 220:868-870; Gallo R. et al., 1984, Science 224:500-503) and HIV-2 (Clavel, F. et al., 1986, Science 233:343-346; Guyader, M. et al., 1987, Nature 326:662-669). Further, a large amount of genetic heterogeneity exists within populations of
25 each of these types. Infection of human CD-4⁺ T-lymphocytes with an HIV virus leads to depletion of the cell type and eventually to opportunistic infections, neurological dysfunctions, neoplastic growth, and ultimately death.

30 HIV is a member of the lentivirus family of retroviruses (Teich, N. et al., 1984, RNA Tumor Viruses, Weiss, R. et al., eds., CSH-Press, pp. 949-956). Retroviruses are small enveloped viruses that
35 contain a diploid, single-stranded RNA genome, and

replicate via a DNA intermediate produced by a virally-encoded reverse transcriptase, an RNA-dependent DNA polymerase (Varmus, H., 1988, Science 240:1427-1439). Other retroviruses include, for example, oncogenic viruses such as human T-cell
5 leukemia viruses (HTLV-I, -II, -III), and feline leukemia virus.

The HIV viral particle consists of a viral core, composed of capsid proteins, that contains the viral RNA genome and those enzymes required for early
10 replicative events. Myristylated Gag protein forms an outer viral shell around the viral core, which is, in turn, surrounded by a lipid membrane enveloped derived from the infected cell membrane. The HIV enveloped surface glycoproteins are synthesized as a single 160
15 Kd precursor protein which is cleaved by a cellular protease during viral budding into two glycoproteins, gp41 and gp120. gp41 is a transmembrane protein and gp120 is an extracellular protein which remains non-covalently associated with gp41, possibly in a
20 trimeric or multimeric form (Hammariskjold, M. and Rekosh, D., 1989, Biochem. Biophys. Acta 989:269-280).

HIV is targeted to CD-4⁺ cells because the CD-4 cell surface protein acts as the cellular receptor for the HIV-1 virus (Dalglish, A. et al., 1984, Nature
25 312:763-767; Klatzmann et al., 1984, Nature 312:767-768; Maddon et al., 1986, Cell 47:333-348). Viral entry into cells is dependent upon gp120 binding the cellular CD-4⁺ receptor molecules (McDougal, J.S. et al., 1986, Science 231:382-385; Maddon, P.J. et al.,
30 1986, Cell 47:333-348) and thus explains HIV's tropism for CD-4⁺ cells, while gp41 anchors the enveloped glycoprotein complex in the viral membrane.

35

2.3. HIV TREATMENT

HIV infection is pandemic and HIV associated diseases represent a major world health problem. Although considerable effort is being put into the successful design of effective therapeutics, currently no curative anti-retroviral drugs against AIDS exist. In attempts to develop such drugs, several stages of the HIV life cycle have been considered as targets for therapeutic intervention (Mitsuya, H. et al., 1991, FASEB J. 5:2369-2381). For example, virally encoded reverse transcriptase has been one focus of drug development. A number of reverse-transcriptase-targeted drugs, including 2',3'-dideoxynucleoside analogs such as AZT, ddI, ddC, and d4T have been developed which have been shown to be active against HIV (Mitsuya, H. et al., 1991, Science 249:1533-1544). While beneficial, these nucleoside analogs are not curative, probably due to the rapid appearance of drug resistant HIV mutants (Lander, B. et al., 1989, Science 243:1731-1734). In addition, the drugs often exhibit toxic side effects such as bone marrow suppression, vomiting, and liver function abnormalities.

Attempts are also being made to develop drugs which can inhibit viral entry into the cell, the earliest stage of HIV infection. Here, the focus has thus far been on CD4, the cell surface receptor for HIV. Recombinant soluble CD4, for example, has been shown to inhibit infection of CD-4⁺ T-cells by some HIV-1 strains (Smith, D.H. et al., 1987, Science 238:1704-1707). Certain primary HIV-1 isolates, however, are relatively less sensitive to inhibition by recombinant CD-4 (Daar, E. et al., 1990, Proc. Natl. Acad. Sci. USA 87:6574-6579). In addition,

recombinant soluble CD-4 clinical trials have produced inconclusive results (Schooley, R. et al., 1990, Ann. Int. Med. 112:247-253; Kahn, J.O. et al., 1990, Ann. Int. Med. 112:254-261; Yarchoan, R. et al., 1989, Proc. Vth Int. Conf. on AIDS, p. 564, MCP 137).

5 The late stages of HIV replication, which involve crucial virus-specific secondary processing of certain viral proteins, have also been suggested as possible anti-HIV drug targets. Late stage processing is dependent on the activity of a viral protease, and
10 drugs are being developed which inhibit this protease (Erickson, J., 1990, Science 249:527-533). The clinical outcome of these candidate drugs is still in question.

15 Attention is also being given to the development of vaccines for the treatment of HIV infection. The HIV-1 enveloped proteins (gp160, gp120, gp41) have been shown to be the major antigens for anti-HIV antibodies present in AIDS patients (Barin, et al., 1985, Science 228:1094-1096). Thus far, therefore,
20 these proteins seem to be the most promising candidates to act as antigens for anti-HIV vaccine development. To this end, several groups have begun to use various portions of gp160, gp120, and/or gp41 as immunogenic targets for the host immune system.
25 See for example, Ivanoff, L. et al., U.S. Pat. No. 5,141,867; Saith, G. et al., WO 92/22,654; Shafferman, A., WO 91/09,872; Formoso, C. et al., WO 90/07,119. Clinical results concerning these candidate vaccines, however, still remain far in the future.

30 Thus, although a great deal of effort is being directed to the design and testing of anti-retroviral drugs, a truly effective, non-toxic treatment is still needed.

35

3. SUMMARY OF THE INVENTION

The present invention relates, first, to DP178 (SEQ ID:1), a 36-amino acid synthetic peptide corresponding to amino acids 638 to 673 of the transmembrane protein (TM) gp41 from the HIV-1 isolate LAI (HIV-1_{LAI}), which exhibits potent anti-HIV-1 activity. As evidenced by the Example presented below, in Section 6, the DP178 (SEQ ID:1) antiviral activity is so high that, on a weight basis, no other known anti-HIV agent is effective at concentrations as low as those at which DP178 (SEQ ID:1) exhibits its inhibitory effects.

The invention further relates to those portions and analogs of DP178 which also show such antiviral activity, and/or show anti-membrane fusion capability, or an ability to modulate intracellular processes involving coiled-coil peptide structures. The term "DP178 analog" refers to a peptide which contains an amino acid sequence corresponding to the DP178 peptide sequence present within the gp41 protein of HIV-1_{LAI}, but found in viruses and/or organisms other than HIV-1_{LAI}. Such DP178 analog peptides may, therefore, correspond to DP178-like amino acid sequences present in other viruses, such as, for example, enveloped viruses, such as retroviruses other than HIV-1_{LAI}, as well as non-enveloped viruses. Further, such analogous DP178 peptides may also correspond to DP178-like amino acid sequences present in nonviral organisms.

The invention further relates to peptides DP107 (SEQ ID NO:25) analogs. DP107 is a peptide corresponding to amino acids 558-595 of the HIV-1_{LAI} transmembrane protein (TM) gp41. The term "DP107 analog" as used herein refers to a peptide which contains an amino acid sequence corresponding to the

DP107 peptide sequence present within the gp41 protein of HIV-1_{LAI}, but found in viruses and organisms other than HIV-1_{LAI}. Such DP107 analog peptides may, therefore, correspond to DP107-like amino acid sequences present in other viruses, such as, for example, enveloped viruses, such as retroviruses other than HIV-1_{LAI}, as well as non-enveloped viruses. Further, such DP107 analog peptides may also correspond to DP107-like amino acid sequences present in nonviral organisms.

Further, the peptides of the invention include DP107 analog and DP178 analog peptides having amino acid sequences recognized or identified by the 107x178x4, ALLMOTI5 and/or PLZIP search motifs described herein.

The peptides of the invention may, for example, exhibit antifusogenic activity, antiviral activity, and/or may have the ability to modulate intracellular processes which involve coiled-coil peptide structures. With respect to the antiviral activity of the peptides of the invention, such an antiviral activity includes, but is not limited to the inhibition of HIV transmission to uninfected CD-4⁺ cells. Additionally, the antifusogenic capability, antiviral activity or intracellular modulatory activity of the peptides of the invention merely requires the presence of the peptides of the invention, and, specifically, does not require the stimulation of a host immune response directed against such peptides.

The peptides of the invention may be used, for example, as inhibitors of membrane fusion-associated events, such as, for example, the inhibition of human and non-human retroviral, especially HIV, transmission to uninfected cells. It is further contemplated that

the peptides of the invention may be used as modulators of intracellular events involving coiled-coil peptide structures.

5 The peptides of the invention may, alternatively, be used to identify compounds which may themselves exhibit antifusogenic, antiviral, or intracellular modulatory activity. Additional uses include, for example, the use of the peptides of the invention as organism or viral type and/or subtype-specific diagnostic tools.

10 The terms "antifusogenic" and "anti-membrane fusion", as used herein, refer to an agent's ability to inhibit or reduce the level of membrane fusion events between two or more moieties relative to the level of membrane fusion which occurs between said
15 moieties in the absence of the peptide. The moieties may be, for example, cell membranes or viral structures, such as viral envelopes or pili. The term "antiviral", as used herein, refers to the compound's ability to inhibit viral infection of cells, via, for
20 example, cell-cell fusion or free virus infection. Such infection may involve membrane fusion, as occurs in the case of enveloped viruses, or some other fusion event involving a viral structure and a cellular structure (e.g., such as the fusion of a viral pilus
25 and bacterial membrane during bacterial conjugation).

It is also contemplated that the peptides of the invention may exhibit the ability to modulate intracellular events involving coiled-coil peptide structures. "Modulate", as used herein, refers to a
30 stimulatory or inhibitory effect on the intracellular process of interest relative to the level or activity of such a process in the absence of a peptide of the invention.

35

Embodiments of the invention are demonstrated below wherein an extremely low concentration of DP178 (SEQ ID:1), and very low concentrations of a DP178 homolog (SEQ ID:3) are shown to be potent inhibitors of HIV-1 mediated CD-4⁺ cell-cell fusion (*i.e.*,
5 syncytial formation) and infection of CD-4⁺ cells by cell-free virus. Further, it is shown that DP178 (SEQ ID:1) is not toxic to cells, even at concentrations 3 logs higher than the inhibitory DP-178 (SEQ ID:1) concentration.

10 The present invention is based, in part, on the surprising discovery that the DP107 and DP178 domains of the HIV gp41 protein non-covalently complex with each other, and that their interaction is required for
15 the normal infectivity of the virus. This discovery is described in the Example presented, below, in Section 8. The invention, therefore, further relates to methods for identifying antifusogenic, including
20 antiviral, compounds that disrupt the interaction between DP107 and DP178, and/or between DP107-like and DP178-like peptides.

Additional embodiments of the invention (specifically, the Examples presents in Sections 9-16 and 19-25, below) are demonstrated, below, wherein
25 peptides, from a variety of viral and nonviral sources, having structural and/or amino acid motif similarity to DP107 and DP178 are identified, and search motifs for their identification are described. Further, Examples (in Sections 17, 18, 25-29) are
30 presented wherein a number of the peptides of the invention are demonstrated exhibit substantial antiviral activity or activity predictive of antiviral activity.

35

3.1. DEFINITIONS

Peptides are defined herein as organic compounds comprising two or more amino acids covalently joined by peptide bonds. Peptides may be referred to with
5 respect to the number of constituent amino acids, i.e., a dipeptide contains two amino acid residues, a tripeptide contains three, etc. Peptides containing ten or fewer amino acids may be referred to as oligopeptides, while those with more than ten amino
10 acid residues are polypeptides. Such peptides may also include any of the modifications and additional amino and carboxy groups as are described herein.

Peptide sequences defined herein are represented by one-letter symbols for amino acid residues as
15 follows:

A (alanine)
R (arginine)
N (asparagine)
D (aspartic acid)
C (cysteine)
20 Q (glutamine)
E (glutamic acid)
G (glycine)
H (histidine)
I (isoleucine)
L (leucine)
K (lysine)
M (methionine)
25 F (phenylalanine)
P (proline)
S (serine)
T (threonine)
W (tryptophan)
Y (tyrosine)
V (valine)

30

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4. BRIEF DESCRIPTION OF THE FIGURES

FIG. 1. Amino acid sequence of DP178 (SEQ ID:1) derived from HIV_{LAJ}; DP178 homologs derived from HIV-1_{SP2} (DP-185; SEQ ID:3), HIV-1_{RF} (SEQ ID:4), and HIV-1_{LN} (SEQ ID:5); DP178 homologs derived from amino acid sequences of two prototypic HIV-2 isolates, namely, HIV-2_{rod} (SEQ ID:6) and HIV-2_{NDHZ} (SEQ ID:7); control peptides: DP-180 (SEQ ID:2), a peptide incorporating the amino acid residues of DP178 in a scrambled sequence; DP-118 (SEQ ID:10) unrelated to DP178, which inhibits HIV-1 cell free virus infection; DP-125 (SEQ ID:8), unrelated to DP178, also inhibits HIV-1 cell free virus infection; DP-116 (SEQ ID:9), unrelated to DP178, is negative for inhibition of HIV-1 infection when tested using a cell-free virus infection assay. Throughout the figures, the one letter amino acid code is used.

FIG. 2. Inhibition of HIV-1 cell-free virus infection by synthetic peptides. IC₅₀ refers to the concentration of peptide that inhibits RT production from infected cells by 50% compared to the untreated control. Control: the level of RT produced by untreated cell cultures infected with the same level of virus as treated cultures.

FIG. 3. Inhibition of HIV-1 and HIV-2 cell-free virus infection by the synthetic peptide DP178 (SEQ ID:1). IC₅₀: concentration of peptide that inhibits RT production by 50% compared to the untreated control. Control: Level of RT produced by untreated cell cultures infected with the same level of virus as treated cultures.

FIG. 4A-4B. Fusion Inhibition Assays. FIG 4A: DP178 (SEQ ID:1) inhibition of HIV-1 prototypic isolate-mediated syncytial formation; data represents the number of virus-induced syncytial per cell. FIG.

4B: DP-180 (SEQ ID:2) represents a scrambled control peptide; DP-185 (SEQ ID:3) represents a DP178 homolog derived from HIV-1_{SP2} isolate; Control, refers to the number of syncytial produced in the absence of peptide.

5 FIG. 5. Fusion inhibition assay: HIV-1 vs. HIV-2. Data represents the number of virus-induced syncytial per well. ND: not done.

10 FIG. 6. Cytotoxicity study of DP178 (SEQ ID:1) and DP-116 (SEQ ID:9) on CEM cells. Cell proliferation data is shown.

15 FIG. 7. Schematic representation of HIV-gp41 and maltose binding protein (MBP)-gp41 fusion proteins. DP107 and DP178 are synthetic peptides based on the two putative helices of gp41. The letter P in the DP107 boxes denotes an Ile to Pro mutation at amino acid number 578. Amino acid residues are numbered according to Meyers et al., "Human Retroviruses and AIDS", 1991, Theoret. Biol. and Biophys. Group, Los Alamos Natl. Lab., Los Alamos, NM. 20 The proteins are more fully described, below, in Section 8.1.1.

 FIG. 8. A point mutation alters the conformation and anti-HIV activity of M41.

25 FIG. 9. Abrogation of DP178 anti-HIV activity. Cell fusion assays were carried out in the presence of 10 nM DP178 and various concentrations of M41Δ178 or M41PA178.

30 FIG. 10. Binding of DP178 to leucine zipper of gp41 analyzed by FAb-D ELISA.

35 FIG. 11A-B. Models for a structural transition in the HIV-1 TM protein. Two models are proposed which indicate a structural transition from a native oligomer to a fusogenic state following a trigger event (possibly gp120 binding to CD4). Common

features of both models include (1) the native state is held together by noncovalent protein-protein interactions to form the heterodimer of gp120/41 and other interactions, principally through gp41 interactive sites, to form homo-oligomers on the virus surface of the gp120/41 complexes; (2) shielding of the hydrophobic fusogenic peptide at the N-terminus (F) in the native state; and (3) the leucine zipper domain (DP107) exists as a homo-oligomer coiled coil only in the fusogenic state. The major differences in the two models include the structural state (native or fusogenic) in which the DP107 and DP178 domains are complexed to each other. In the first model (FIG. 11A) this interaction occurs in the native state and in the second (FIG. 11B), it occurs during the fusogenic state. When triggered, the fusion complex in the model depicted in (A) is generated through formation of coiled-coil interactions in homologous DP107 domains resulting in an extended α -helix. This conformational change positions the fusion peptide for interaction with the cell membrane. In the second model (FIG. 11B), the fusogenic complex is stabilized by the association of the DP178 domain with the DP107 coiled-coil.

FIG. 12. Motif design using heptad repeat positioning of amino acids of known coiled-coils.

FIG. 13. Motif design using proposed heptad repeat positioning of amino acids of DP107 and DP178.

FIG. 14. Hybrid motif design crossing GCN4 and DP107.

FIG. 15. Hybrid motif design crossing GCN4 and DP178.

FIG. 16. Hybrid motif design 107x178x4, crossing DP107 and DP178. This motif was found to be

the most consistent at identifying relevant DP107-like and DP178-like peptide regions.

FIG. 17. Hybrid motif design crossing GCN4, DP107, and DP178.

5 FIG. 18. Hybrid motif design ALLMOTI5 crossing GCN4, DP107, DP178, c-Fos c-Jun, c-Myc, and Flu Loop 36.

FIG. 19. PLZIP motifs designed to identify N-terminal proline-leucine zipper motifs.

10 FIG. 20. Search results for HIV-1 (BRU isolate) enveloped protein gp41. Sequence search motif designations: Spades (♠): 107x178x4; Hearts (♥) ALLMOTI5; Clubs (♣): PLZIP; Diamonds (♦): transmembrane region (the putative transmembrane domains were identified using a PC/Gene program
15 designed to search for such peptide regions). Asterisk (*): Lupas method. The amino acid sequences identified by each motif are bracketed by the respective characters. Representative sequences
20 chosen based on 107x178x4 searches are underlined and in bold. DP107 and DP178 sequences are marked, and additionally double-underlined and italicized.

FIG. 21. Search results for human respiratory syncytial virus (RSV) strain A2 fusion glycoprotein F1. Sequence search motif designations
25 are as in FIG. 20.

FIG. 22. Search results for simian immunodeficiency virus (SIV) enveloped protein gp41 (AGM3 isolate). Sequence search motif designations
30 are as in FIG. 20.

FIG. 23. Search results for canine distemper virus (strain Onderstepoort) fusion glycoprotein 1. Sequence search motif designations
are as in FIG. 20.

35

FIG. 24. Search results for newcastle disease virus (strain Australia-Victoria/32) fusion glycoprotein F1. Sequence search motif designations are as in FIG. 20.

5 FIG. 25. Search results for human parainfluenza 3 virus (strain NIH 47885) fusion glycoprotein F1. Sequence search motif designations are as in FIG. 20.

10 FIG. 26. Search results for influenza A virus (strain A/AICHI/2/68) hemagglutinin precursor HA2. Sequence search designations are as in FIG. 20.

FIG. 27A-D. Respiratory Syncytial Virus (RSV) peptide antiviral and circular dichroism data. FIG. 27A-B: Peptides derived from the F2 DP178/DP107-like region. Antiviral and CD data. FIG. 27C-D: 15 Peptides derived from the F1 DP107-like region. Peptide and CD data.

Antiviral activity (AV) is represented by the following qualitative symbols:

20 "-", negative antiviral activity;
"+/-", antiviral activity at greater than 100µg/ml;
"+", antiviral activity at between 50-100µg/ml;
"++", antiviral activity at between 20-50µg/ml;
25 "+++", antiviral activity at between 1-20µg/ml;
"++++", antiviral activity at <1µg/ml.

CD data, referring to the level of helicity is represented by the following qualitative symbol:

30 "-", no helicity;
"+", 25-50% helicity;
"++", 50-75% helicity;
"++++", 75-100% helicity.

35 IC₅₀ refers to the concentration of peptide necessary to produce only 50% of the number of syncytial relative to infected control cultures

containing no peptide. IC_{50} values were obtained using purified peptides only.

FIG. 28A-B. Respiratory Syncytial Virus (RSV) DP178-like region (F1) peptide antiviral and CD data. Antiviral symbols, CD symbols, and IC_{50} are as in FIG. 27A-D. IC_{50} values were obtained using purified peptides only.

FIG. 29A-B. Peptides derived from the HPIV3 F1 DP107-like region. Peptide antiviral and CD data. Antiviral symbols, CD symbols, and IC_{50} are as in FIG. 27A-D. Purified peptides were used to obtain IC_{50} values, except where the values are marked by an asterisk (*), in which cases, the IC_{50} values were obtained using a crude peptide preparation.

FIG. 30A-B. Peptides derived from the HPIV3 F1 DP178-like region. Peptide antiviral and CD data. Antiviral symbols, CD symbols, and IC_{50} are as in FIG. 27A-D. Purified peptides were used to obtain IC_{50} values, except where the values are marked by an asterisk (*), in which cases, the IC_{50} values were obtained using a crude peptide preparation.

FIG. 31. Motif search results for simian immunodeficiency virus (SIV) isolate MM251, enveloped polyprotein gp41. Sequence search designations are as in FIG. 20.

FIG. 32. Motif search results for Epstein-Barr Virus (Strain B95-8), glycoprotein gp110 precursor (designated gp115). BALF4. Sequence search designations are as in FIG. 20.

FIG. 33. Motif search results for Epstein-Barr Virus (Strain B95-8), BZLF1 trans-activator protein (designated EB1 or Zebra). Sequence search designations are as in FIG. 20. Additionally, "@" refers to a well known DNA binding domain and "+" refers to a well known dimerization domain, as defined

by Flemington and Speck (Flemington, E. and Speck, S.H., 1990, Proc. Natl. Acad. Sci. USA 87:9459-9463).

FIG. 34. Motif search results for measles virus (strain Edmonston), fusion glycoprotein F1. Sequence search designations are as in FIG. 20.

5 FIG. 35. Motif search results for Hepatitis B Virus (Subtype AYW), major surface antigen precursor S. Sequence search designations are as in FIG. 20.

FIG. 36. Motif search results for simian Mason-Pfizer monkey virus, enveloped (TM) protein gp20. Sequence search designations are as in FIG. 20.

FIG. 37. Motif search results for *Pseudomonas aeruginosa*, fimbrial protein (Pilin). Sequence search designations are as in FIG. 20.

15 FIG. 38. Motif search results for *Neisseria gonorrhoeae* fimbrial protein (Pilin). Sequence search designations are as in FIG. 20.

FIG. 39. Motif search results for *Hemophilus influenzae* fimbrial protein. Sequence search designations are as in FIG. 20.

20 FIG. 40. Motif search results for *Staphylococcus aureus*, toxic shock syndrome toxin-1. Sequence search designations are as in FIG. 20.

FIG. 41. Motif search results for *Staphylococcus aureus* enterotoxin Type E. Sequence search designations are as in FIG. 20.

25 FIG. 42. Motif search results for *Staphylococcus aureus* enterotoxin A. Sequence search designations are as in FIG. 20.

FIG. 43. Motif search results for *Escherichia coli*, heat labile enterotoxin A. Sequence search designations are as in FIG. 20.

FIG. 44. Motif search results for human c-fos proto-oncoprotein. Sequence search designations are as in FIG. 20.

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FIG. 45. Motif search results for human lupus KU autoantigen protein P70. Sequence search designations are as in FIG. 20.

FIG. 46. Motif search results for human zinc finger protein 10. Sequence search designations are as in FIG. 20.

FIG. 47. Measles virus (MeV) fusion protein DP178-like region antiviral and CD data. Antiviral symbols, CD symbols, and IC_{50} are as in FIG. 27A-D. IC_{50} values were obtained using purified peptides.

FIG. 48. Simian immunodeficiency virus (SIV) TM (fusion) protein DP178-like region antiviral data. Antiviral symbols are as in FIG. 27A-D "NT", not tested.

FIG. 49A-C. DP178-derived peptide antiviral data. The peptides listed herein were derived from the region surrounding the HIV-1 BRU isolate DP178 region (e.g., gp41 amino acid residues 615-717).

In instances where peptides contained DP178 point mutations, the mutated amino acid residues are shown with a shaded background. In instances in which the test peptide has had an amino and/or carboxy-terminal group added or removed (apart from the standard amido- and acetyl- blocking groups found on such peptides), such modifications are indicated. FIG. 49A: The column to the immediate right of the name of the test peptide indicates the size of the test peptide and points out whether the peptide is derived from a one amino acid peptide "walk" across the DP178 region. The next column to the right indicates whether the test peptide contains a point mutation, while the column to its right indicates whether certain amino acid residues have been added to or removed from the DP178-derived amino acid sequence. FIG 49B: The column to the immediate right of the test peptide name

indicates whether the peptide represents a DP178 truncation, the next column to the right points out whether the peptide contains a point mutation, and the column to its right indicates whether the peptide contains amino acids which have been added to or removed from the DP178 sequence itself. FIG. 49C: The column to the immediate right of the test peptide name indicates whether the test peptide contains a point mutation, while the column to its right indicates whether amino acid residues have been added to or removed from the DP178 sequence itself. IC_{50} is as defined in FIG. 27A-D, and IC_{50} values were obtained using purified peptides except where marked with an asterisk (*), in which case the IC_{50} was obtained using a crude peptide preparation.

FIG. 50. DP107 and DP107 gp41 region truncated peptide antiviral data. IC_{50} as defined in FIG. 27A-D, and IC_{50} values were obtained using purified peptides except where marked with an asterisk (*), in which case the IC_{50} was obtained using a crude peptide preparation.

FIG. 51A-B. Epstein-Barr virus Strain B95-8 BZLF1 DP178/DP107 analog region peptide walks and electrophoretic mobility shift assay results. The peptides (T-423 to T-446, FIG. 51A; T-447 to T-461, FIG. 51B) represent one amino acid residue "walks" through the EBV Zebra protein region from amino acid residue 173 to 246.

The amino acid residue within this region which corresponds to the first amino acid residue of each peptide is listed to the left of each peptide, while the amino acid residue within this region which corresponds to the last amino acid residue of each peptide is listed to the right of each peptide. The

length of each test peptide is listed at the far right of each line, under the heading "Res".

"ACT" refers to a test peptide's ability to inhibit Zebra binding to its response element. "+" refers to a visible, but incomplete, abrogation of the response element/Zebra homodimer complex; "+++" refers to a complete abrogation of the complex; and "-" represents a lack of complex disruption.

FIG. 52A-B. Hepatitis B virus subtype AYW major surface antigen precursor S protein DP178/DP107 analog region and peptide walks. 52A depicts Domain I (S protein amino acid residues 174-220), which contains a potential DP178/DP107 analog region. In addition, peptides are listed which represent one amino acid peptide "walks" through domain I. 52B depicts Domain II (S protein amino acid residues 233-291), which contains a second potential DP178/DP107 analog region. In addition, peptides are listed which represent one amino acid peptide "walks" through domain II.

5. DETAILED DESCRIPTION OF THE INVENTION

Described herein are peptides which may exhibit antifusogenic activity, antiviral capability, and/or the ability to modulate intracellular processes involving coiled-coil peptide structures. The peptides described include, first, DP178 (SEQ ID NO:1), a gp41-derived 36 amino acid peptide and fragments and analogs of DP178.

In addition, the peptides of the invention described herein include peptides which are DP107 analogs. DP107 (SEQ ID NO:25) is a 38 amino acid peptide corresponding to residues 558 to 595 of the HIV-1_{LAI} transmembrane (TM) gp41 protein. Such DP107 analogs may exhibit antifusogenic capability, antiviral activity or an ability to modulate

intracellular processes involving coiled-coil structures.

Further, peptides of the invention include DP107 and DP178 are described herein having amino acid sequences recognized by the 107x178x4, ALLMOTI5, and PLZIP search motifs. Such motifs are also discussed.

Also described here are antifusogenic, antiviral, intracellular modulatory, and diagnostic uses of the peptides of the invention. Further, procedures are described for the use of the peptides of the invention for the identification of compounds exhibiting antifusogenic, antiviral or intracellular modulatory activity.

While not limited to any theory of operation, the following model is proposed to explain the potent anti-HIV activity of DP178, based, in part, on the experiments described in the Examples, *infra*. In the HIV protein, gp41, DP178 corresponds to a putative α -helix region located in the C-terminal end of the gp41 ectodomain, and appears to associate with a distal site on gp41 whose interactive structure is influenced by the leucine zipper motif, a coiled-coil structure, referred to as DP107. The association of these two domains may reflect a molecular linkage or "molecular clasp" intimately involved in the fusion process. It is of interest that mutations in the C-terminal α -helix motif of gp41 (*i.e.*, the D178 domain) tend to enhance the fusion ability of gp41, whereas mutations in the leucine zipper region (*i.e.*, the DP107 domain) decrease or abolish the fusion ability of the viral protein. It may be that the leucine zipper motif is involved in membrane fusion while the C-terminal α -helix motif serves as a molecular safety to regulate the availability of the leucine zipper during virus-induced membrane fusion.

On the basis of the foregoing, two models are proposed of gp41-mediated membrane fusion which are schematically shown in FIG. 11A-B. The reason for proposing two models is that the temporal nature of the interaction between the regions defined by DP107 and DP178 cannot, as yet, be pinpointed. Each model envisions two conformations for gp41 - one in a "native" state as it might be found on a resting virion. The other in a "fusogenic" state to reflect conformational changes triggered following binding of gp120 to CD4 and just prior to fusion with the target cell membrane. The strong binding affinity between gp120 and CD4 may actually represent the trigger for the fusion process obviating the need for a pH change such as occurs for viruses that fuse within intracellular vesicles. The two major features of both models are: (1) the leucine zipper sequences (DP107) in each chain of oligomeric enveloped are held apart in the native state and are only allowed access to one another in the fusogenic state so as to form the extremely stable coiled-coils, and (2) association of the DP178 and DP107 sites as they exist in gp41 occur either in the native or fusogenic state. FIG. 11A depicts DP178/DP107 interaction in the native state as a molecular clasp. On the other hand, if one assumes that the most stable form of the enveloped occurs in the fusogenic state, the model in FIG. 11B can be considered.

When synthesized as peptides, both DP107 and DP178 are potent inhibitors of HIV infection and fusion, probably by virtue of their ability to form complexes with viral gp41 and interfere with its fusogenic process; e.g., during the structural transition of the viral protein from the native structure to the fusogenic state, the DP178 and DP107

peptides may gain access to their respective binding sites on the viral gp41, and exert a disruptive influence. DP107 peptides which demonstrate anti-HIV activity are described in Applicants' co-pending application Serial No. 08/264,531, filed June 23, 1994, which is incorporated by reference herein in its entirety.

As shown in the Examples, *infra*, a truncated recombinant gp41 protein corresponding to the ectodomain of gp41 containing both DP107 and DP178 domains (excluding the fusion peptide, transmembrane region and cytoplasmic domain of gp41) did not inhibit HIV-1 induced fusion. However, when a single mutation was introduced to disrupt the coiled-coil structure of the DP107 domain -- a mutation which results in a total loss of biological activity of DP107 peptides -- the inactive recombinant protein was transformed to an active inhibitor of HIV-1 induced fusion. This transformation may result from liberation of the potent DP178 domain from a molecular clasp with the leucine zipper, DP107 domain.

For clarity of discussion, the invention will be described primarily for DP178 peptide inhibitors of HIV. However, the principles may be analogously applied to other viruses, both enveloped and nonenveloped, and to other non-viral organisms.

5.1. DP178 AND DP178-LIKE PEPTIDES

The DP178 peptide (SEQ ID:1) of the invention corresponds to amino acid residues 638 to 673 of the transmembrane protein gp41 from the HIV-1_{LAI} isolate, and has the 36 amino acid sequence (reading from amino to carboxy terminus):

NH₂-YTSLIHSLIEESQNQQEKNEQELLELDKWASLWNWF-COOH (SEQ ID:1)

In addition to the full-length DP178 (SEQ ID:1) 36-mer, the peptides of the invention may include truncations of the DP178 (SEQ ID:1) peptide which exhibit antifusogenic activity, antiviral activity and/or the ability to modulate intracellular processes involving coiled-coil peptide structures. Truncations of DP178 (SEQ ID:1) peptides may comprise peptides of between 3 and 36 amino acid residues (i.e., peptides ranging in size from a tripeptide to a 36-mer polypeptide), as shown in Tables I and IA, below.

Peptide sequences in these tables are listed from amino (left) to carboxy (right) terminus. "X" may represent an amino group ($-NH_2$) and "Z" may represent a carboxyl ($-COOH$) group. Alternatively, "X" may represent a hydrophobic group, including but not limited to carbobenzyl, dansyl, or T-butoxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (FMOC) group; or a covalently attached macromolecular group, including but not limited to a lipid-fatty acid conjugate, polyethylene glycol, carbohydrate or peptide group. Further, "Z" may represent an amido group; a T-butoxycarbonyl group; or a covalently attached macromolecular group, including but not limited to a lipid-fatty acid conjugate, polyethylene glycol, carbohydrate or peptide group. A preferred "X" or "Z" macromolecular group is a peptide group.

TABLE I
DP178 (SEQ ID:1) CARBOXY TRUNCATIONS

	X-YTS-Z
	X-YTSL-Z
	X-YTSLI-Z
	X-YTSLIH-Z
5	X-YTSLIHS-Z
	X-YTSLIHSL-Z
	X-YTSLIHSLI-Z
	X-YTSLIHSLIE-Z
	X-YTSLIHSLIEE-Z
	X-YTSLIHSLIEES-Z
	X-YTSLIHSLIEESQ-Z
10	X-YTSLIHSLIEESQN-Z
	X-YTSLIHSLIEESQNNQ-Z
	X-YTSLIHSLIEESQNNQQ-Z
	X-YTSLIHSLIEESQNNQQE-Z
	X-YTSLIHSLIEESQNNQQEK-Z
	X-YTSLIHSLIEESQNNQQEKN-Z
	X-YTSLIHSLIEESQNNQQEKNE-Z
	X-YTSLIHSLIEESQNNQQEKNEQ-Z
15	X-YTSLIHSLIEESQNNQQEKNEQE-Z
	X-YTSLIHSLIEESQNNQQEKNEQEL-Z
	X-YTSLIHSLIEESQNNQQEKNEQELL-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLE-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLEL-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELD-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDK-Z
20	X-YTSLIHSLIEESQNNQQEKNEQELLELDKW-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWA-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWAS-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWASL-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWASLW-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWASLWN-Z
	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWASLWNW-Z
25	X-YTSLIHSLIEESQNNQQEKNEQELLELDKWASLWNWF-Z

The one letter amino acid code is used.

Additionally,

"X" may represent an amino group, a hydrophobic group, including but not limited to carbobenzoxyl, dansyl, or T-butyloxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (Fmoc) group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

"Z" may represent a carboxyl group; an amido group; a T-butyloxycarbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

TABLE IA
DP178 (SEQ ID:1) AMINO TRUNCATIONS

	X-NWF-Z
	X-WNWF-Z
	X-LWNWF-Z
5	X-SLWNWF-Z
	X-ASLWNWF-Z
	X-WASLWNWF-Z
	X-KWASLWNWF-Z
	X-DKWASLWNWF-Z
	X-LDKWASLWNWF-Z
	X-ELDKWASLWNWF-Z
10	X-LELDKWASLWNWF-Z
	X-LLELDKWASLWNWF-Z
	X-ELLELDKWASLWNWF-Z
	X-QELLELDKWASLWNWF-Z
	X-EQELLELDKWASLWNWF-Z
	X-NEQELLELDKWASLWNWF-Z
	X-KNEQELLELDKWASLWNWF-Z
	X-EKNEQELLELDKWASLWNWF-Z
15	X-QEKNEQELLELDKWASLWNWF-Z
	X-QQEKNEQELLELDKWASLWNWF-Z
	X-NQQEKNEQELLELDKWASLWNWF-Z
	X-QNQQEKNEQELLELDKWASLWNWF-Z
	X-SQNQQEKNEQELLELDKWASLWNWF-Z
	X-ESQNQQEKNEQELLELDKWASLWNWF-Z
	X-EESQNQQEKNEQELLELDKWASLWNWF-Z
20	X-IEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-LIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-SLIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-HSLIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-IHSLIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-LIHSLIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-SLIHSLIEESQNQQEKNEQELLELDKWASLWNWF-Z
	X-TSLIHSLIEESQNQQEKNEQELLELDKWASLWNWF-Z
25	X-YTSLIHSLIEESQNQQEKNEQELLELDKWASLWNWF-Z

The one letter amino acid code is used.

Additionally,

30 "X" may represent an amino group, a hydrophobic group, including but not limited to carbobenzoxyl, dansyl, or T-butyloxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

35 "Z" may represent a carboxyl group; an amido group; a T-butyloxycarbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

The peptides of the invention also include DP178-like peptides. "DP178-like", as used herein, refers, first, to DP178 and DP178 truncations which contain one or more amino acid substitutions, insertions and/or deletions. Second, "DP-178-like" refers to peptide sequences identified or recognized by the ALLMOTIS, 107x178x4 and PLZIP search motifs described herein, having structural and/or amino acid motif similarity to DP178. The DP178-like peptides of the invention may exhibit antifusogenic or antiviral activity, or may exhibit the ability to modulate intracellular processes involving coiled-coil peptides. Further, such DP178-like peptides may possess additional advantageous features, such as, for example, increased bioavailability, and/or stability, or reduced host immune recognition.

HIV-1 and HIV-2 enveloped proteins are structurally distinct, but there exists a striking amino acid conservation within the DP178-corresponding regions of HIV-1 and HIV-2. The amino acid conservation is of a periodic nature, suggesting some conservation of structure and/or function. Therefore, one possible class of amino acid substitutions would include those amino acid changes which are predicted to stabilize the structure of the DP178 peptides of the invention. Utilizing the DP178 and DP178 analog sequences described herein, the skilled artisan can readily compile DP178 consensus sequences and ascertain from these, conserved amino acid residues which would represent preferred amino acid substitutions.

The amino acid substitutions may be of a conserved or non-conserved nature. Conserved amino acid substitutions consist of replacing one or more amino acids of the DP178 (SEQ ID:1) peptide sequence with amino acids of similar charge, size, and/or

hydrophobicity characteristics, such as, for example, a glutamic acid (E) to aspartic acid (D) amino acid substitution. Non-conserved substitutions consist of replacing one or more amino acids of the DP178 (SEQ ID:1) peptide sequence with amino acids possessing dissimilar charge, size, and/or hydrophobicity characteristics, such as, for example, a glutamic acid (E) to valine (V) substitution.

Amino acid insertions may consist of single amino acid residues or stretches of residues. The insertions may be made at the carboxy or amino terminal end of the DP178 or DP178 truncated peptides, as well as at a position internal to the peptide. Such insertions will generally range from 2 to 15 amino acids in length. It is contemplated that insertions made at either the carboxy or amino terminus of the peptide of interest may be of a broader size range, with about 2 to about 50 amino acids being preferred. One or more such insertions may be introduced into DP178 (SEQ.ID:1) or DP178 truncations, as long as such insertions result in peptides which may still be recognized by the 107x178x4, ALLMOTI5 or PLZIP search motifs described herein, or may, alternatively, exhibit antifusogenic or antiviral activity, or exhibit the ability to modulate intracellular processes involving coiled-coil peptide structures.

Preferred amino or carboxy terminal insertions are peptides ranging from about 2 to about 50 amino acid residues in length, corresponding to gp41 protein regions either amino to or carboxy to the actual DP178 gp41 amino acid sequence, respectively. Thus, a preferred amino terminal or carboxy terminal amino acid insertion would contain gp41 amino acid sequences found immediately amino to or carboxy to the DP178 region of the gp41 protein.

Deletions of DP178 (SEQ ID:1) or DP178 truncations are also within the scope of the invention. Such deletions consist of the removal of one or more amino acids from the DP178 or DP178-like peptide sequence, with the lower limit length of the
5 resulting peptide sequence being 4 to 6 amino acids. Such deletions may involve a single contiguous or greater than one discrete portion of the peptide sequences. One or more such deletions may be introduced into DP178 (SEQ.ID:1) or DP178 truncations,
10 as long as such deletions result in peptides which may still be recognized by the 107x178x4, ALLMOTI5 or PLZIP search motifs described herein, or may, alternatively, exhibit antifusogenic or antiviral activity, or exhibit the ability to modulate
15 intracellular processes involving coiled-coil peptide structures.

DP178 analogs are further described, below, in Section 5.3.

20 5.2. DP107 AND DP107-LIKE PEPTIDES

Further, the peptides of the invention include peptides having amino acid sequences corresponding to DP107 analogs. DP107 is a 38 amino acid peptide which exhibits potent antiviral activity, and corresponds to
25 residues 558 to 595 of HIV-1_{LAI} transmembrane (TM) gp41 protein, as shown here:

NH₂-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERYLKDQ-COOH
(SEQ ID:25)
30

In addition to the full-length DP107 (SEQ ID:25) 38-mer, the peptides of the invention may include truncations of the DP107 (SEQ ID:25) peptide which exhibit antifusogenic activity, antiviral activity
35 and/or the ability to modulate intracellular processes

involving coiled-coil peptide structures. Truncations of DP107 (SEQ ID:25) peptides may comprise peptides of between 3 and 38 amino acid residues (*i.e.*, peptides ranging in size from a tripeptide to a 38-mer polypeptide), as shown in Tables II and IIA, below.

5 Peptide sequences in these tables are listed from amino (left) to carboxy (right) terminus. "X" may represent an amino group ($-NH_2$) and "Z" may represent a carboxyl ($-COOH$) group. Alternatively, "X" may represent a hydrophobic group, including but not

10 limited to carbobenzyl, dansyl, or T-butoxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (Fmoc) group; or a covalently attached macromolecular group, including but not limited to a lipid-fatty acid

15 conjugate, polyethylene glycol, carbohydrate or peptide group. Further, "Z" may represent an amido group; a T-butoxycarbonyl group; or a covalently attached macromolecular group, including but not

20 limited to a lipid-fatty acid conjugate, polyethylene glycol, carbohydrate or peptide group. A preferred "X" or "Z" macromolecular group is a peptide group.

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TABLE II
DP107 (SEQ ID:25) CARBOXY TRUNCATIONS

X-NNL-Z
 X-NNLL-Z
 X-NNLLR-Z
 5 X-NNLLRA-Z
 X-NNLLRAI-Z
 X-NNLLRAIE-Z
 X-NNLLRAIEA-Z
 X-NNLLRAIEAQ-Z
 X-NNLLRAIEAQQ-Z
 X-NNLLRAIEAQQH-Z
 10 X-NNLLRAIEAQQHL-Z
 X-NNLLRAIEAQQHLL-Z
 X-NNLLRAIEAQQHLLQ-Z
 X-NNLLRAIEAQQHLLQL-Z
 X-NNLLRAIEAQQHLLQLT-Z
 X-NNLLRAIEAQQHLLQLTV-Z
 X-NNLLRAIEAQQHLLQLTVW-Z
 X-NNLLRAIEAQQHLLQLTVWQ-Z
 15 X-NNLLRAIEAQQHLLQLTVWQI-Z
 X-NNLLRAIEAQQHLLQLTVWQIK-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQ-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQL-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQ-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQA-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQAR-Z
 20 X-NNLLRAIEAQQHLLQLTVWQIKQLQARI-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARIL-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILA-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAV-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVE-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVER-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERY-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERYL-Z
 25 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERYLK-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERYLKD-Z
 X-NNLLRAIEAQQHLLQLTVWQIKQLQARILAVERYLKDQ-Z

The one letter amino acid code is used.

Additionally,

- 30 "X" may represent an amino group, a hydrophobic group, including but not limited to carbobenzoxyl, dansyl, or T-butyloxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (Fmoc) group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.
- 35 "Z" may represent a carboxyl group; an amido group; a T-butyloxycarbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

TABLE IIA
DP178 (SEQ ID:25) AMINO TRUNCATIONS

	X-KDQ-	Z
	X-LKDQ-	Z
5	X-YLKDQ-	Z
	X-RYLKDQ-	Z
	X-ERYLKDQ-	Z
	X-VERYLKDQ-	Z
	X-AVERYLKDQ-	Z
	X-LAVERYLKDQ-	Z
	X-ILAVERYLKDQ-	Z
10	X-RILAVERYLKDQ-	Z
	X-ARILAVERYLKDQ-	Z
	X-QARILAVERYLKDQ-	Z
	X-LQARILAVERYLKDQ-	Z
	X-QLQARILAVERYLKDQ-	Z
	X-KQLQARILAVERYLKDQ-	Z
	X-IKQLQARILAVERYLKDQ-	Z
	X-QIKQLQARILAVERYLKDQ-	Z
15	X-WQIKQLQARILAVERYLKDQ-	Z
	X-VWQIKQLQARILAVERYLKDQ-	Z
	X-TVWQIKQLQARILAVERYLKDQ-	Z
	X-LTVWQIKQLQARILAVERYLKDQ-	Z
	X-QLTVWQIKQLQARILAVERYLKDQ-	Z
	X-LQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-LLQLTVWQIKQLQARILAVERYLKDQ-	Z
20	X-HLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-QHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-QQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-AQQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-EAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-IEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-AIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-RAIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
25	X-LRAIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-LLRAIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-NLLRAIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z
	X-NNLLRAIEAQHLLQLTVWQIKQLQARILAVERYLKDQ-	Z

The one letter amino acid code is used.

Additionally,

30 "x" may represent an amino group, a hydrophobic group, including but not limited to carbobenzoxyl, dansyl, or T-butyloxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

35 "z" may represent a carboxyl group; an amido group; a T-butyloxycarbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

The peptides of the invention also include DP107-like peptides. "DP107-like", as used herein, refers, first, to DP107 and DP107 truncations which contain one or more amino acid substitutions, insertions and/or deletions. Second, "DP-107-like" refers to
5 peptide sequences identified or recognized by the ALLMOTI5, 107x178x4 and PLZIP search motifs described herein, having structural and/or amino acid motif similarity to DP107. The DP107-like peptides of the
10 invention may exhibit antifusogenic or antiviral activity, or may exhibit the ability to modulate intracellular processes involving coiled-coil peptides. Further, such DP107-like peptides may possess additional advantageous features, such as, for
15 example, increased bioavailability, and/or stability, or reduced host immune recognition.

HIV-1 and HIV-2 enveloped proteins are structurally distinct, but there exists a striking amino acid conservation within the DP107-corresponding regions of HIV-1 and HIV-2. The amino acid
20 conservation is of a periodic nature, suggesting some conservation of structure and/or function. Therefore, one possible class of amino acid substitutions would include those amino acid changes which are predicted to stabilize the structure of the DP107 peptides of
25 the invention. Utilizing the DP107 and DP107 analog sequences described herein, the skilled artisan can readily compile DP107 consensus sequences and ascertain from these, conserved amino acid residues which would represent preferred amino acid
30 substitutions.

The amino acid substitutions may be of a conserved or non-conserved nature. Conserved amino acid substitutions consist of replacing one or more amino acids of the DP107 (SEQ ID:25) peptide sequence
35 with amino acids of similar charge, size, and/or

hydrophobicity characteristics, such as, for example, a glutamic acid (E) to aspartic acid (D) amino acid substitution. Non-conserved substitutions consist of replacing one or more amino acids of the DP107 (SEQ ID:25) peptide sequence with amino acids possessing dissimilar charge, size, and/or hydrophobicity characteristics, such as, for example, a glutamic acid (E) to valine (V) substitution.

Amino acid insertions may consist of single amino acid residues or stretches of residues. The insertions may be made at the carboxy or amino terminal end of the DP107 or DP107 truncated peptides, as well as at a position internal to the peptide. Such insertions will generally range from 2 to 15 amino acids in length. It is contemplated that insertions made at either the carboxy or amino terminus of the peptide of interest may be of a broader size range, with about 2 to about 50 amino acids being preferred. One or more such insertions may be introduced into DP107 (SEQ.ID:25) or DP107 truncations, as long as such insertions result in peptides which may still be recognized by the 107x178x4, ALLMOTI5 or PLZIP search motifs described herein, or may, alternatively, exhibit antifusogenic or antiviral activity, or exhibit the ability to modulate intracellular processes involving coiled-coil peptide structures.

Preferred amino or carboxy terminal insertions are peptides ranging from about 2 to about 50 amino acid residues in length, corresponding to gp41 protein regions either amino to or carboxy to the actual DP107 gp41 amino acid sequence, respectively. Thus, a preferred amino terminal or carboxy terminal amino acid insertion would contain gp41 amino acid sequences found immediately amino to or carboxy to the DP107 region of the gp41 protein.

Del tions of DP107 (SEQ ID:25) r DP178 truncations are also within the scope of the invention. Such deletions consist of the removal of one or more amino acids from the DP107 or DP107-like peptide sequence, with the lower limit length of the
5 resulting peptide sequence being 4 to 6 amino acids. Such deletions may involve a single contiguous or greater than one discrete portion of the peptide sequences. One or more such deletions may be introduced into DP107 (SEQ.ID:25) or DP107
10 truncations, as long as such deletions result in peptides which may still be recognized by the 107x178x4, ALLMOTI5 or PLZIP search motifs described herein, or may, alternatively, exhibit antifusogenic or antiviral activity, or exhibit the ability to
15 modulate intracellular processes involving coiled-coil peptide structures.

DP107 and DP107 truncations are more fully described in Applicants' co-pending U.S. Patent Application Ser. No. 08/374,666, filed January 27,
20 1995, and which is incorporated herein by reference in its entirety. DP107 analogs are further described, below, in Section 5.3.

5.3. DP107 and DP178 ANALOGS

25 Peptides corresponding to analogs of the DP178, DP178 truncations, DP107 and DP107 truncation sequences of the invention, described, above, in Sections 5.1 and 5.2 may be found in other viruses, including, for example, non-HIV-1_{LAI} enveloped viruses,
30 non-enveloped viruses and other non-viral organisms.

The term "analog", as used herein, refers to a peptide which is recognized or identified via the 107x178x4, ALLMOTI5 and/or PLZIP search strategies discussed below. Further, such peptides may exhibit
35 antifusogenic capability, antiviral activity, or the

ability to modulate intracellular processes involving coiled-coil structures.

Such DP178 and DP107 analogs may, for example, correspond to peptide sequences present in TM proteins of enveloped viruses and may, additionally correspond to peptide sequences present in non enveloped and non-viral organisms. Such peptides may exhibit antifusogenic activity, antiviral activity, most particularly antiviral activity which is specific to the virus in which their native sequences are found, or may exhibit an ability to modulate intracellular processes involving coiled-coil peptide structures.

DP178 analogs are peptides whose amino acid sequences are comprised of the amino acid sequences of peptide regions of, for example, other (*i.e.*, other than HIV-1_{LAI}) viruses that correspond to the gp41 peptide region from which DP178 (SEQ ID:1) was derived. Such viruses may include, but are not limited to, other HIV-1 isolates and HIV-2 isolates. DP178 analogs derived from the corresponding gp41 peptide region of other (*i.e.*, non HIV-1_{LAI}) HIV-1 isolates may include, for example, peptide sequences as shown below.

NH₂-YTNTIYTLLEESQNQQEKNEQEELLELDKWASLWNWF-COOH (DP-185; SEQ ID:3);

NH₂-YTGIYNLLEESQNQQEKNEQEELLELDKWANLWNWF-COOH (SEQ ID:4);

NH₂-YTSLIYSLLEKSQIQQEKNEQEELLELDKWASLWNWF-COOH (SEQ ID:5).

SEQ ID:3 (DP-185), SEQ ID:4, and SEQ ID:5 are derived from HIV-1_{SP2}, HIV-1_{RF}, and HIV-1_{MN} isolates, respectively. Underlined amino acid residues refer to those residues that differ from the corresponding position in the DP178 (SEQ ID:1) peptide. One such

DP178 analog, DP-185 (SEQ ID:3), is described in the Example presented in Section 6, below, where it is demonstrated that DP-185 (SEQ ID:3) exhibits antiviral activity. The DP178 analogs of the invention may also include truncations, as described above. Further, the analogs of the invention modifications such those described for DP178 analogs in Section 5.1., above. It is preferred that the DP178 analogs of the invention represent peptides whose amino acid sequences correspond to the DP178 region of the gp41 protein, it is also contemplated that the peptides of the invention may, additionally, include amino sequences, ranging from about 2 to about 50 amino acid residues in length, corresponding to gp41 protein regions either amino to or carboxy to the actual DP178 amino acid sequence.

Striking similarities, as shown in FIG. 1, exist within the regions of HIV-1 and HIV-2 isolates which correspond to the DP178 sequence. A DP178 analog derived from the HIV-2_{NH2} isolate has the 36 amino acid sequence (reading from amino to carboxy terminus):

NH₂-LEANISQSLEQAQIQQEKNMYELQKLSWDVFTNWL-COOH (SEQ ID:7)

Table III and Table IV show some possible truncations of the HIV-2_{NH2} DP178 analog, which may comprise peptides of between 3 and 36 amino acid residues (i.e., peptides ranging in size from a tripeptide to a 36-mer polypeptide). Peptide sequences in these tables are listed from amino (left) to carboxy (right) terminus. "X" may represent an amino group (-NH₂) and "Z" may represent a carboxyl (-COOH) group. Alternatively, "X" may represent a hydrophobic group, including but not limited to carbobenzyl, dansyl, or T-butoxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (Fmoc) group; or a

covalently attached macromolecular group, including but not limited to a lipid-fatty acid conjugate, polyethylene glycol, carbohydrate or peptide group. Further, "Z" may represent an amido group; a T-butoxycarbonyl group; or a covalently attached
5 macromolecular group, including but not limited to a lipid-fatty acid conjugate, polyethylene glycol, carbohydrate or peptide group. A preferred "X" or "Z" macromolecular group is a peptide group.

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TABLE IIIHIV-2_{MDZ} DP178 analog carboxy truncations.

- X-LEA-Z
 X-LEAN-Z
 X-LEANI-Z
 X-LEANIS-Z
 5 X-LEANISQ-Z
 X-LEANISQS-Z
 X-LEANISQSL-Z
 X-LEANISQSLE-Z
 X-LEANISQSLEQ-Z
 X-LEANISQSLEQA-Z
 X-LEANISQSLEQAQ-Z
 10 X-LEANISQSLEQAQI-Z
 X-LEANISQSLEQAQIQ-Z
 X-LEANISQSLEQAQIQQ-Z
 X-LEANISQSLEQAQIQQE-Z
 X-LEANISQSLEQAQIQQEK-Z
 X-LEANISQSLEQAQIQQEKN-Z
 X-LEANISQSLEQAQIQQEKNM-Z
 X-LEANISQSLEQAQIQQEKNMY-Z
 15 X-LEANISQSLEQAQIQQEKNMYE-Z
 X-LEANISQSLEQAQIQQEKNMYEL-Z
 X-LEANISQSLEQAQIQQEKNMYELQ-Z
 X-LEANISQSLEQAQIQQEKNMYELQK-Z
 X-LEANISQSLEQAQIQQEKNMYELQKL-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLN-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNS-Z
 20 X-LEANISQSLEQAQIQQEKNMYELQKLNSW-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWD-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDV-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVDF-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVFT-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVFTN-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVFTNW-Z
 X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
 25

The one letter amino acid code is used.

Additionally,

- "X" may represent an amino group, a hydrophobic group,
 including but not limited to carbobenzoxyl, dansyl, or
 30 T-butyloxycarbonyl; an acetyl group; a 9-
 fluorenylmethoxy-carbonyl (Fmoc) group; a
 macromolecular carrier group including but not limited
 to lipid-fatty acid conjugates, polyethylene glycol,
 or carbohydrates.

- "Z" may represent a carboxyl group; an amido group; a
 T-butyloxycarbonyl group; a macromolecular carrier
 35 group including but not limited to lipid-fatty acid
 conjugates, polyethylene glycol, or carbohydrates.

TABLE IV

HIV-2_{NDZ} DP178 analog amino truncations.

	X-NWL-Z
	X-TNWL-Z
	X-FTNWL-Z
5	X-VFTNWL-Z
	X-DVFTNWL-Z
	X-WDVFTNWL-Z
	X-SWDVFTNWL-Z
	X-NSWDVFTNWL-Z
	X-LNSWDVFTNWL-Z
	X-KLNSWDVFTNWL-Z
	X-QKLNSWDVFTNWL-Z
10	X-LQKLNSWDVFTNWL-Z
	X-ELQKLNSWDVFTNWL-Z
	X-YELQKLNSWDVFTNWL-Z
	X-MYELQKLNSWDVFTNWL-Z
	X-NMYELQKLNSWDVFTNWL-Z
	X-KNMYELQKLNSWDVFTNWL-Z
	X-EKNMYELQKLNSWDVFTNWL-Z
15	X-QEKNMYELQKLNSWDVFTNWL-Z
	X-QQEKNMYELQKLNSWDVFTNWL-Z
	X-IQQEKNMYELQKLNSWDVFTNWL-Z
	X-QIQQEKNMYELQKLNSWDVFTNWL-Z
	X-AQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-QAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-EQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-LEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
20	X-SLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-QSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-SQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-ISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-NISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-ANISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
	X-EANISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z
25	X-LEANISQSLEQAQIQQEKNMYELQKLNSWDVFTNWL-Z

The one letter amino acid code is used.

Additionally,

"X" may represent an amino group, a hydrophobic group, including but not limited to carbobenzoxyl, dansyl, or T-butyloxycarbonyl; an acetyl group; a 9-fluorenylmethoxy-carbonyl (Fmoc) group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

"Z" may represent a carboxyl group; an amido group; a T-butyloxycarbonyl group; a macromolecular carrier group including but not limited to lipid-fatty acid conjugates, polyethylene glycol, or carbohydrates.

DP178 and DP107 analogs are recognized or identified, for example, by utilizing one or more of the 107x178x4, ALLMOTI5 or PLZIP computer-assisted search strategies described and demonstrated, below, in the Examples presented in Sections 9 through 16 and 19 through 25. The search strategy identifies additional peptide regions which are predicted to have structural and/or amino acid sequence features similar to those of DP107 and/or DP178.

The search strategies are described fully, below, in the Example presented in Section 9. While this search strategy is based, in part, on a primary amino acid motif deduced from DP107 and DP178, it is not based solely on searching for primary amino acid sequence homologies, as such protein sequence homologies exist within, but not between major groups of viruses. For example, primary amino acid sequence homology is high within the TM protein of different strains of HIV-1 or within the TM protein of different isolates of simian immunodeficiency virus (SIV). Primary amino acid sequence homology between HIV-1 and SIV, however, is low enough so as not to be useful. It is not possible, therefore, to find peptide regions similar to DP107 or DP178 within other viruses, or within non-viral organisms, whether structurally, or otherwise, based on primary sequence homology, alone.

Further, while it would be potentially useful to identify primary sequence arrangements of amino acids based on, for example, the physical chemical characteristics of different classes of amino acids rather than based on the specific amino acids themselves, such search strategies have, until now, proven inadequate. For example, a computer algorithm designed by Lupas et al. to identify coiled-coil propensities of regions within proteins (Lupas, A., et al., 1991 Science 252:1162-1164) is inadequate for

identifying protein regions analogous to DP107 or DP178.

Specifically, analysis of HIV-1 gp160 (containing both gp120 and gp41) using the Lupas algorithm does not identify the coiled-coil region within DP107. It does, however, identify a region within DP178 beginning eight amino acids N-terminal to the start of DP178 and ending eight amino acids from the C-terminus. The DP107 peptide has been shown experimentally to form a stable coiled coil. A search based on the Lupas search algorithm, therefore, would not have identified the DP107 coiled-coil region. Conversely, the Lupas algorithm identified the DP178 region as a potential coiled-coil motif. However, the peptide derived from the DP178 region failed to form a coiled coil in solution.

A possible explanation for the inability of the Lupas search algorithm to accurately identify coiled-coil sequences within the HIV-1 TM, is that the Lupas algorithm is based on the structure of coiled coils from proteins that are not structurally or functionally similar to the TM proteins of viruses, antiviral peptides (e.g. DP107 and DP178) of which are an object of this invention.

The computer search strategy of the invention, as demonstrated in the Examples presented below, in Sections 9 through 16 and 19 through 25, successfully identifies regions of proteins similar to DP107 or DP178. This search strategy was designed to be used with a commercially-available sequence database package, preferably PC/Gene.

A series of search motifs, the 107x178x4, ALLMOTI5 and PLZIP motifs, were designed and engineered to range in stringency from strict to broad, as discussed in this Section and in Section 9, with 107x178x4 being preferred. The sequences

identified via such search motifs, such as those listed in Tables V-XIV, below, potentially exhibit antifusogenic, such as antiviral, activity, may additionally be useful in the identification of antifusogenic, such as antiviral, compounds, and are intended to be within the scope of the invention.

Coiled-coiled sequences are thought to consist of heptad amino acid repeats. For ease of description, the amino acid positions within the heptad repeats are sometimes referred to as A through G, with the first position being A, the second B, etc. The motifs used to identify DP107-like and DP178-like sequences herein are designed to specifically search for and identify such heptad repeats. In the descriptions of each of the motifs described, below, amino acids enclosed by brackets, i.e., [], designate the only amino acid residues that are acceptable at the given position, while amino acids enclosed by braces, i.e., {}, designate the only amino acids which are unacceptable at the given heptad position. When a set of bracketed or braced amino acids is followed by a number in parentheses i.e., (), it refers to the number of subsequent amino acid positions for which the designated set of amino acids hold, e.g., a (2) means "for the next two heptad amino acid positions".

The ALLMOTIS is written as follows:

```
{CDGHP}-{CFP}(2)-{CDGHP}-{CFP}(3)-
{CDGHP}-{CFP}(2)-{CDGHP}-{CFP}(3)-
{CDGHP}-{CFP}(2)-{CDGHP}-{CFP}(3)-
{CDGHP}-{CFP}(2)-{CDGHP}-{CFP}(3)-
{CDGHP}-{CFP}(2)-{CDGHP}-{CFP}(3)-
```

Translating this motif, it would read: "at the first (A) position of the heptad, any amino acid residue except C, D, G, H, or P is acceptable, at the next two (B,C) amino acid positions, any amino acid residue except C, F, or P is acceptable, at the fourth heptad position (D), any amino acid residue except C,

D, G, H, or P is acceptable, at the next three (E, F, G) amino acid positions, any amino acid residue except C, F, or P is acceptable. This motif is designed to search for five consecutive heptad repeats (thus the repeat of the first line five times), meaning that it searches for 35-mer sized peptides. It may also be designed to search for 28-mers, by only repeating the initial motif four times. With respect to the ALLMOTI5 motif, a 35-mer search is preferred. Those viral (non-bacteriophage) sequences identified via such an ALLMOTI5 motif are listed in Table V, below, at the end of this Section. The viral sequences listed in Table V potentially exhibit antiviral activity, may be useful in the the identification of antiviral compounds, and are intended to be within the scope of the invention. In those instances wherein a single gene exhibits greater than one sequence recognized by the ALLMOTI5 search motif, the amino acid residue numbers of these sequences are listed under "Area 2", Area 3", etc. This convention is used for each of the Tables listed, below, at the end of this Section.

The 107x178x4 motif is written as follows:

[EFIKLNQSTVWY]-{CFMP}(2)-[EFIKLNQSTVWY]-{CFMP}(3)-
 [EFIKLNQSTVWY]-{CFMP}(2)-[EFIKLNQSTVWY]-{CFMP}(3)-
 [EFIKLNQSTVWY]-{CFMP}(2)-[EFIKLNQSTVWY]-{CFMP}(3)-
 [EFIKLNQSTVWY]-{CFMP}(2)-[EFIKLNQSTVWY]-{CFMP}(3)-

Translating this motif, it would read: "at the first (A) position of the heptad, only amino acid residue E, F, I, K, L, N, Q, S, T, V, W, or Y is acceptable, at the next two (B,C) amino acid positions, any amino acid residue except C, F, M or P is acceptable, at the fourth position (D), only amino acid residue E, F, I, K, L, N, Q, S, T, V, W, or Y is acceptable, at the next three (E, F, G) amino acid positions, any amino acid residue except C, F, M or P is acceptable. This motif is designed to search for

four consecutive heptad repeats (thus the repeat of the first line four times), meaning that it searches for 28-mer sized peptides. It may also be designed to search for 35-mers, by repeating the initial motif five times. With respect to the 107x178x4 motif, a 28-mer search is preferred.

Those viral (non-bacteriophage) sequences identified via such a 107x178x4 motif are listed in Table VI, below, at the end of this Section, with those viral (non-bacteriophage) sequences listed in Table VII, below at the end of this Section, being preferred.

The 107x178x4 search motif was also utilized to identify non-viral procaryotic protein sequences, as listed in Table VIII, below, at the end of this Section. Further, this search motif was used to reveal a number of human proteins. The results of this human protein 107x178x4 search is listed in Table IX, below, at the end of this Section. The sequences listed in Tables VIII and IX, therefore, reveal peptides which may be useful as antifusogenic compounds or in the identification of antifusogenic compounds, and are intended to be within the scope of the invention.

The PLZIP series of motifs are as listed in FIG. 19. These motifs are designed to identify leucine zipper coiled-coil like heptads wherein at least one proline residue is present at some predefined distance N-terminal to the repeat. These PLZIP motifs find regions of proteins with similarities to HIV-1 DP178 generally located just N-terminal to the transmembrane anchor. These motifs may be translated according to the same convention described above. Each line depicted in FIG. 19 represents a single, complete search motif. "X" in these motifs refers to any amino acid residue. In instances wherein a motif contains

two numbers within parentheses, this refers to a variable number of amino acid residues. For example, X (1,12) is translated to "the next one to twelve amino acid residues, inclusive, may be any amino acid".

5 Tables X through XIV, below, at the end of this Section, list sequences identified via searches conducted with such PLZIP motifs. Specifically, Table X lists viral sequences identified via PCTLZIP, P1CTLZIP and P2CTLZIP search motifs, Table XI lists
10 viral sequences identified via P3CTLZIP, P4CTLZIP, P5CTLZIP and P6CTLZIP search motifs, Table XII lists viral sequences identified via P7CTLZIP, P8CTLZIP and P9CTLZIP search motifs, Table XIII lists viral
15 sequences identified via P12LZIPC searches and Table XIV lists viral sequences identified via P23TLZIPC search motifs. The viral sequences listed in these tables represent peptides which potentially exhibit
20 antiviral activity, may be useful in the identification of antiviral compounds, and are intended to be within the scope of the invention.

 The Examples presented in Sections 17, 18, 26 and 27 below, demonstrate that viral sequences identified via the motif searches described herein identify
25 substantial antiviral characteristics. Specifically, the Example presented in Section 17 describes peptides with anti-respiratory syncytial virus activity, the Example presented in Section 18 describes peptides with anti-parainfluenza virus activity, the Example
30 presented in Section 26 describes peptides with anti-measles virus activity and the Example presented in Section 27 describes peptides with anti-simian immunodeficiency virus activity.

 The DP107 and DP178 analogs may, further, contain
35 any of the additional groups described for DP178, above, in Section 5.1. For example, these peptides

may include any of the additional amino-terminal groups as described above for "X" groups, and may also include any of the carboxy-terminal groups as described, above, for "Z" groups.

5 Additionally, truncations of the identified DP107 and DP178 peptides are among the peptides of the invention. Further, such DP107 and DP178 analogs and DP107/DP178 analog truncations may exhibit one or more amino acid substitutions, insertion, and/or deletions. The DP178 analog amino acid substitutions, insertions and deletions, are as described, above, for DP178-like peptides in Section 5.1. The DP-107 analog amino acid substitutions, insertions and deletions are also as described, above, for DP107-like peptides in Section 10 5.2.

15 Tables XV through XXII, below, present representative examples of such DP107/DP178 truncations. Specifically, Table XV presents Respiratory Syncytial Virus F1 region DP107 analog carboxy truncations, Table XVI presents Respiratory Syncytial Virus F1 region DP107 analog amino truncations, Table XVII presents Respiratory Syncytial Virus F1 region DP178 analog carboxy truncations, Table XVIII presents Respiratory Syncytial Virus F1 region DP178 analog amino truncations, Table XIX presents Human Parainfluenza Virus 3 F1 region DP178 analog carboxy truncations, Table XX presents Human Parainfluenza Virus 3 F1 region DP178 analog amino truncations, Table XXI presents Human Parainfluenza Virus 3 F1 region DP107 analog carboxy truncations and 30 Table XXII presents Human Parainfluenza Virus 3 F1 region DP107 analog amino truncations. Further, Table XXIII, below, presents DP107/DP178 analogs and analog truncations which exhibit substantial antiviral activity. These antiviral peptides are grouped 35 according to the specific virus which they inhibit,

including respiratory syncytial virus, human
parainfluenza virus 3, simian immunodeficiency virus
and measles virus.

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TABLE V

ALLMOTIS SEARCH RESULTS SUMMARY

FOR ALL VIRAL (NON-BACTERIOPHAGE) PROTEINS

[illegible]

[illegible]

53

[illegible]

[illegible]

GENE	ALLNOTES	AD Virus (as determined)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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[illegible]

PCG CODE	ALLANOTIS	AB Virus (as battery package)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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ALLNOTES	PGENE	FILENAME	PROTEIN	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500
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37	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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PGCDE	ALLNOTIS	ALLVIRUS (see bacteriophage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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CELLS	ALL MOTIFS	AIR Virus (see last page)	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 454	AREA 455	AREA 456	AREA 457	AREA 458	AREA 459	AREA 460	AREA 461	AREA 462	AREA 463	AREA 464	AREA 465	AREA 466	AREA 467	AREA 468	AREA 469	AREA 470	AREA 471	AREA 472	AREA 473	AREA 474	AREA 475	AREA 476	AREA 477	AREA 478	AREA 479	AREA 480	AREA 481	AREA 482	AREA 483	AREA 484	AREA 485	AREA 486	AREA 487	AREA 488	AREA 489	AREA 490	AREA 491	AREA 492	AREA 493	AREA 494	AREA 495	AREA 496	AREA 497	AREA 498	AREA 499	AREA 500	AREA 501	AREA 502	AREA 503	AREA 504	AREA 505	AREA 506	AREA 507	AREA 508	AREA 509	AREA 510	AREA 511	AREA 512	AREA 513	AREA 514	AREA 515	AREA 516	AREA 517	AREA 518	AREA 519	AREA 520	AREA 521	AREA 522	AREA 523	AREA 524	AREA 525	AREA 526	AREA 527	AREA 528	AREA 529	AREA 530	AREA 531	AREA 532	AREA 533	AREA 534	AREA 535	AREA 536	AREA 537	AREA 538	AREA 539	AREA 540	AREA 541	AREA 542	AREA 543	AREA 544	AREA 545	AREA 546	AREA 547	AREA 548	AREA 549	AREA 550	AREA 551	AREA 552	AREA 553	AREA 554	AREA 555	AREA 556	AREA 557	AREA 558	AREA 559	AREA 560	AREA 561	AREA 562	AREA 563	AREA 564	AREA 565	AREA 566	AREA 567	AREA 568	AREA 569	AREA 570	AREA 571	AREA 572	AREA 573	AREA 574	AREA 575	AREA 576	AREA 577	AREA 578	AREA 579	AREA 580	AREA 581	AREA 582	AREA 583	AREA 584	AREA 585	AREA 586	AREA 587	AREA 588	AREA 589	AREA 590	AREA 591	AREA 592	AREA 593	AREA 594	AREA 595	AREA 596	AREA 597	AREA 598	AREA 599	AREA 600	AREA 601	AREA 602	AREA 603	AREA 604	AREA 605	AREA 606	AREA 607	AREA 608	AREA 609	AREA 610	AREA 611	AREA 612	AREA 613	AREA 614	AREA 615	AREA 616	AREA 617	AREA 618	AREA 619	AREA 620	AREA 621	AREA 622	AREA 623	AREA 624	AREA 625	AREA 626	AREA 627	AREA 628	AREA 629	AREA 630	AREA 631	AREA 632	AREA 633	AREA 634	AREA 635	AREA 636	AREA 637	AREA 638	AREA 639	AREA 640	AREA 641	AREA 642	AREA 643	AREA 644	AREA 645	AREA 646	AREA 647	AREA 648	AREA 649	AREA 650	AREA 651	AREA 652	AREA 653	AREA 654	AREA 655	AREA 656	AREA 657	AREA 658	AREA 659	AREA 660	AREA 661	AREA 662	AREA 663	AREA 664	AREA 665	AREA 666	AREA 667	AREA 668	AREA 669	AREA 670	AREA 671	AREA 672	AREA 673	AREA 674	AREA 675	AREA 676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
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heterologous)	ABV1	ABV2	ABV3	ABV4	ABV5	ABV6	ABV7	ABV8	ABV9	ABV10	ABV11	ABV12	ABV13	ABV14	ABV15	ABV16	ABV17	ABV18	ABV19	ABV20	ABV21	ABV22	ABV23	ABV24	ABV25	ABV26	ABV27	ABV28	ABV29	ABV30	ABV31	ABV32	ABV33	ABV34	ABV35	ABV36	ABV37	ABV38	ABV39	ABV40	ABV41	ABV42	ABV43	ABV44	ABV45	ABV46	ABV47	ABV48	ABV49	ABV50	ABV51	ABV52	ABV53	ABV54	ABV55	ABV56	ABV57	ABV58	ABV59	ABV60	ABV61	ABV62	ABV63	ABV64	ABV65	ABV66	ABV67	ABV68	ABV69	ABV70	ABV71	ABV72	ABV73	ABV74	ABV75	ABV76	ABV77	ABV78	ABV79	ABV80	ABV81	ABV82	ABV83	ABV84	ABV85	ABV86	ABV87	ABV88	ABV89	ABV90	ABV91	ABV92	ABV93	ABV94	ABV95	ABV96	ABV97	ABV98	ABV99	ABV100	ABV101	ABV102	ABV103	ABV104	ABV105	ABV106	ABV107	ABV108	ABV109	ABV110	ABV111	ABV112	ABV113	ABV114	ABV115	ABV116	ABV117	ABV118	ABV119	ABV120	ABV121	ABV122	ABV123	ABV124	ABV125	ABV126	ABV127	ABV128	ABV129	ABV130	ABV131	ABV132	ABV133	ABV134	ABV135	ABV136	ABV137	ABV138	ABV139	ABV140	ABV141	ABV142	ABV143	ABV144	ABV145	ABV146	ABV147	ABV148	ABV149	ABV150	ABV151	ABV152	ABV153	ABV154	ABV155	ABV156	ABV157	ABV158	ABV159	ABV160	ABV161	ABV162	ABV163	ABV164	ABV165	ABV166	ABV167	ABV168	ABV169	ABV170	ABV171	ABV172	ABV173	ABV174	ABV175	ABV176	ABV177	ABV178	ABV179	ABV180	ABV181	ABV182	ABV183	ABV184	ABV185	ABV186	ABV187	ABV188	ABV189	ABV190	ABV191	ABV192	ABV193	ABV194	ABV195	ABV196	ABV197	ABV198	ABV199	ABV200	ABV201	ABV202	ABV203	ABV204	ABV205	ABV206	ABV207	ABV208	ABV209	ABV210	ABV211	ABV212	ABV213	ABV214	ABV215	ABV216	ABV217	ABV218	ABV219	ABV220	ABV221	ABV222	ABV223	ABV224	ABV225	ABV226	ABV227	ABV228	ABV229	ABV230	ABV231	ABV232	ABV233	ABV234	ABV235	ABV236	ABV237	ABV238	ABV239	ABV240	ABV241	ABV242	ABV243	ABV244	ABV245	ABV246	ABV247	ABV248	ABV249	ABV250	ABV251	ABV252	ABV253	ABV254	ABV255	ABV256	ABV257	ABV258	ABV259	ABV260	ABV261	ABV262	ABV263	ABV264	ABV265	ABV266	ABV267	ABV268	ABV269	ABV270	ABV271	ABV272	ABV273	ABV274	ABV275	ABV276	ABV277	ABV278	ABV279	ABV280	ABV281	ABV282	ABV283	ABV284	ABV285	ABV286	ABV287	ABV288	ABV289	ABV290	ABV291	ABV292	ABV293	ABV294	ABV295	ABV296	ABV297	ABV298	ABV299	ABV300	ABV301	ABV302	ABV303	ABV304	ABV305	ABV306	ABV307	ABV308	ABV309	ABV310	ABV311	ABV312	ABV313	ABV314	ABV315	ABV316	ABV317	ABV318	ABV319	ABV320	ABV321	ABV322	ABV323	ABV324	ABV325	ABV326	ABV327	ABV328	ABV329	ABV330	ABV331	ABV332	ABV333	ABV334	ABV335	ABV336	ABV337	ABV338	ABV339	ABV340	ABV341	ABV342	ABV343	ABV344	ABV345	ABV346	ABV347	ABV348	ABV349	ABV350	ABV351	ABV352	ABV353	ABV354	ABV355	ABV356	ABV357	ABV358	ABV359	ABV360	ABV361	ABV362	ABV363	ABV364	ABV365	ABV366	ABV367	ABV368	ABV369	ABV370	ABV371	ABV372	ABV373	ABV374	ABV375	ABV376	ABV377	ABV378	ABV379	ABV380	ABV381	ABV382	ABV383	ABV384	ABV385	ABV386	ABV387	ABV388	ABV389	ABV390	ABV391	ABV392	ABV393	ABV394	ABV395	ABV396	ABV397	ABV398	ABV399	ABV400	ABV401	ABV402	ABV403	ABV404	ABV405	ABV406	ABV407	ABV408	ABV409	ABV410	ABV411	ABV412	ABV413	ABV414	ABV415	ABV416	ABV417	ABV418	ABV419	ABV420	ABV421	ABV422	ABV423	ABV424	ABV425	ABV426	ABV427	ABV428	ABV429	ABV430	ABV431	ABV432	ABV433	ABV434	ABV435	ABV436	ABV437	ABV438	ABV439	ABV440	ABV441	ABV442	ABV443	ABV444	ABV445	ABV446	ABV447	ABV448	ABV449	ABV450	ABV451	ABV452	ABV453	ABV454	ABV455	ABV456	ABV457	ABV458	ABV459	ABV460	ABV461	ABV462	ABV463	ABV464	ABV465	ABV466	ABV467	ABV468	ABV469	ABV470	ABV471	ABV472	ABV473	ABV474	ABV475	ABV476	ABV477	ABV478	ABV479	ABV480	ABV481	ABV482	ABV483	ABV484	ABV485	ABV486	ABV487	ABV488	ABV489	ABV490	ABV491	ABV492	ABV493	ABV494	ABV495	ABV496	ABV497	ABV498	ABV499	ABV500	ABV501	ABV502	ABV503	ABV504	ABV505	ABV506	ABV507	ABV508	ABV509	ABV510	ABV511	ABV512	ABV513	ABV514	ABV515	ABV516	ABV517	ABV518	ABV519	ABV520	ABV521	ABV522	ABV523	ABV524	ABV525	ABV526	ABV527	ABV528	ABV529	ABV530	ABV531	ABV532	ABV533	ABV534	ABV535	ABV536	ABV537	ABV538	ABV539	ABV540	ABV541	ABV542	ABV543	ABV544	ABV545	ABV546	ABV547	ABV548	ABV549	ABV550	ABV551	ABV552	ABV553	ABV554	ABV555	ABV556	ABV557	ABV558	ABV559	ABV560	ABV561	ABV562	ABV563	ABV564	ABV565	ABV566	ABV567	ABV568	ABV569	ABV570	ABV571	ABV572	ABV573	ABV574	ABV575	ABV576	ABV577	ABV578	ABV579	ABV580	ABV581	ABV582	ABV583	ABV584	ABV585	ABV586	ABV587	ABV588	ABV589	ABV590	ABV591	ABV592	ABV593	ABV594	ABV595	ABV596	ABV597	ABV598	ABV599	ABV600	ABV601	ABV602	ABV603	ABV604	ABV605	ABV606	ABV607	ABV608	ABV609	ABV610	ABV611	ABV612	ABV613	ABV614	ABV615	ABV616	ABV617	ABV618	ABV619	ABV620	ABV621	ABV622	ABV623	ABV624	ABV625	ABV626	ABV627	ABV628	ABV629	ABV630	ABV631	ABV632	ABV633	ABV634	ABV635	ABV636	ABV637	ABV638	ABV639	ABV640	ABV641	ABV642	ABV643	ABV644	ABV645	ABV646	ABV647	ABV648	ABV649	ABV650	ABV651	ABV652	ABV653	ABV654	ABV655	ABV656	ABV657	ABV658	ABV659	ABV660	ABV661	ABV662	ABV663	ABV664	ABV665	ABV666	ABV667	ABV668	ABV669	ABV670	ABV671	ABV672	ABV673	ABV674	ABV675	ABV676	ABV677	ABV678	ABV679	ABV680	ABV681	ABV682	ABV683	ABV684	ABV685	ABV686	ABV687	ABV688	ABV689	ABV690	ABV691	ABV692	ABV693	ABV694	ABV695	ABV696	ABV697	ABV698	ABV699	ABV700	ABV701	ABV702	ABV703	ABV704	ABV705	ABV706	ABV707	ABV708	ABV709	ABV710	ABV711	ABV712	ABV713	ABV714	ABV715	ABV716	ABV717	ABV718	ABV719	ABV720	ABV721	ABV722	ABV723	ABV724	ABV725	ABV726	ABV727	ABV728	ABV729	ABV730	ABV731	ABV732	ABV733	ABV734	ABV735	ABV736	ABV737	ABV738	ABV739	ABV740	ABV741	ABV742	ABV743	ABV744	ABV745	ABV746	ABV747	ABV748	ABV749	ABV750	ABV751	ABV752	ABV753	ABV754	ABV755	ABV756	ABV757	ABV758	ABV759	ABV760	ABV761	ABV762	ABV763	ABV764	ABV765	ABV766	ABV767	ABV768	ABV769	ABV770	ABV771	ABV772	ABV773	ABV774	ABV775	ABV776	ABV777	ABV778	ABV779	ABV780	ABV781	ABV782	ABV783	ABV784	ABV785	ABV786	ABV787	ABV788	ABV789	ABV790	ABV791	ABV792	ABV793	ABV794	ABV795	ABV796	ABV797	ABV798	ABV799	ABV800	ABV801	ABV802	ABV803	ABV804	ABV805	ABV806	ABV807	ABV808	ABV809	ABV810	ABV811	ABV812	ABV813	ABV814	ABV815	ABV816	ABV817	ABV818	ABV819	ABV820	ABV821	ABV822	ABV823	ABV824	ABV825	ABV826	ABV827	ABV828	ABV829	ABV830	ABV831	ABV832	ABV833	ABV834	ABV835	ABV836	ABV837	ABV838	ABV839	ABV840	ABV841	ABV842	ABV843	ABV844	ABV845	ABV846	ABV847	ABV848	ABV849	ABV850	ABV851	ABV852	ABV853	ABV854	ABV855	ABV856	ABV857	ABV858	ABV859	ABV860	ABV861	ABV862	ABV863	ABV864	ABV865	ABV866	ABV867	ABV868	ABV869	ABV870	ABV871	ABV872	ABV873	ABV874	ABV875	ABV876	ABV877	ABV878	ABV879	ABV880	ABV881	ABV882	ABV883	ABV884	ABV885	ABV886	ABV887	ABV888	ABV889	ABV890	ABV891	ABV892	ABV893	ABV894	ABV895	ABV896	ABV897	ABV898	ABV899	ABV900	ABV901	ABV902	ABV903	ABV904	ABV905	ABV906	ABV907	ABV908	ABV909	ABV910	ABV911	ABV912	ABV913	ABV914	ABV915	ABV916	ABV917	ABV918	ABV919	ABV920	ABV921	ABV922	ABV923	ABV924	ABV925	ABV926	ABV927	ABV928	ABV929	ABV930	ABV931	ABV932	ABV933	ABV934	ABV935	ABV936	ABV937	ABV938	ABV939	ABV940	ABV941	ABV942	ABV943	ABV944	ABV945	ABV946	ABV947	ABV948	ABV949	ABV950	ABV951	ABV952	ABV953	ABV954	ABV955	ABV956	ABV957	ABV958	ABV959	ABV960	ABV961	ABV962	ABV963	ABV964	ABV965	ABV966	ABV967	ABV968	ABV969	ABV970	ABV971	ABV972	ABV973	ABV974	ABV975	ABV976	ABV977	ABV978	ABV979	ABV980	ABV981	ABV982	ABV983	ABV984	ABV985	ABV986	ABV987	ABV988	ABV989	ABV990	ABV991	ABV992	ABV993	ABV994	ABV995	ABV996	ABV997	ABV998	ABV999	ABV1000
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ACCENSE	ALLMOTHS	ALL VERO (no bacteriophage)	AREA.1	AREA.2	AREA.3	AREA.4	AREA.5	AREA.6	AREA.7	AREA.8	AREA.9	AREA.10	AREA.11	AREA.12	AREA.13	AREA.14	AREA.15	AREA.16	AREA.17	AREA.18	AREA.19	AREA.20	AREA.21	AREA.22	AREA.23	AREA.24	AREA.25	AREA.26	AREA.27	AREA.28	AREA.29	AREA.30	AREA.31	AREA.32	AREA.33	AREA.34	AREA.35	AREA.36	AREA.37	AREA.38	AREA.39	AREA.40	AREA.41	AREA.42	AREA.43	AREA.44	AREA.45	AREA.46	AREA.47	AREA.48	AREA.49	AREA.50	AREA.51	AREA.52	AREA.53	AREA.54	AREA.55	AREA.56	AREA.57	AREA.58	AREA.59	AREA.60	AREA.61	AREA.62	AREA.63	AREA.64	AREA.65	AREA.66	AREA.67	AREA.68	AREA.69	AREA.70	AREA.71	AREA.72	AREA.73	AREA.74	AREA.75	AREA.76	AREA.77	AREA.78	AREA.79	AREA.80	AREA.81	AREA.82	AREA.83	AREA.84	AREA.85	AREA.86	AREA.87	AREA.88	AREA.89	AREA.90	AREA.91	AREA.92	AREA.93	AREA.94	AREA.95	AREA.96	AREA.97	AREA.98	AREA.99	AREA.100	AREA.101	AREA.102	AREA.103	AREA.104	AREA.105	AREA.106	AREA.107	AREA.108	AREA.109	AREA.110	AREA.111	AREA.112	AREA.113	AREA.114	AREA.115	AREA.116	AREA.117	AREA.118	AREA.119	AREA.120	AREA.121	AREA.122	AREA.123	AREA.124	AREA.125	AREA.126	AREA.127	AREA.128	AREA.129	AREA.130	AREA.131	AREA.132	AREA.133	AREA.134	AREA.135	AREA.136	AREA.137	AREA.138	AREA.139	AREA.140	AREA.141	AREA.142	AREA.143	AREA.144	AREA.145	AREA.146	AREA.147	AREA.148	AREA.149	AREA.150	AREA.151	AREA.152	AREA.153	AREA.154	AREA.155	AREA.156	AREA.157	AREA.158	AREA.159	AREA.160	AREA.161	AREA.162	AREA.163	AREA.164	AREA.165	AREA.166	AREA.167	AREA.168	AREA.169	AREA.170	AREA.171	AREA.172	AREA.173	AREA.174	AREA.175	AREA.176	AREA.177	AREA.178	AREA.179	AREA.180	AREA.181	AREA.182	AREA.183	AREA.184	AREA.185	AREA.186	AREA.187	AREA.188	AREA.189	AREA.190	AREA.191	AREA.192	AREA.193	AREA.194	AREA.195	AREA.196	AREA.197	AREA.198	AREA.199	AREA.200	AREA.201	AREA.202	AREA.203	AREA.204	AREA.205	AREA.206	AREA.207	AREA.208	AREA.209	AREA.210	AREA.211	AREA.212	AREA.213	AREA.214	AREA.215	AREA.216	AREA.217	AREA.218	AREA.219	AREA.220	AREA.221	AREA.222	AREA.223	AREA.224	AREA.225	AREA.226	AREA.227	AREA.228	AREA.229	AREA.230	AREA.231	AREA.232	AREA.233	AREA.234	AREA.235	AREA.236	AREA.237	AREA.238	AREA.239	AREA.240	AREA.241	AREA.242	AREA.243	AREA.244	AREA.245	AREA.246	AREA.247	AREA.248	AREA.249	AREA.250	AREA.251	AREA.252	AREA.253	AREA.254	AREA.255	AREA.256	AREA.257	AREA.258	AREA.259	AREA.260	AREA.261	AREA.262	AREA.263	AREA.264	AREA.265	AREA.266	AREA.267	AREA.268	AREA.269	AREA.270	AREA.271	AREA.272	AREA.273	AREA.274	AREA.275	AREA.276	AREA.277	AREA.278	AREA.279	AREA.280	AREA.281	AREA.282	AREA.283	AREA.284	AREA.285	AREA.286	AREA.287	AREA.288	AREA.289	AREA.290	AREA.291	AREA.292	AREA.293	AREA.294	AREA.295	AREA.296	AREA.297	AREA.298	AREA.299	AREA.300	AREA.301	AREA.302	AREA.303	AREA.304	AREA.305	AREA.306	AREA.307	AREA.308	AREA.309	AREA.310	AREA.311	AREA.312	AREA.313	AREA.314	AREA.315	AREA.316	AREA.317	AREA.318	AREA.319	AREA.320	AREA.321	AREA.322	AREA.323	AREA.324	AREA.325	AREA.326	AREA.327	AREA.328	AREA.329	AREA.330	AREA.331	AREA.332	AREA.333	AREA.334	AREA.335	AREA.336	AREA.337	AREA.338	AREA.339	AREA.340	AREA.341	AREA.342	AREA.343	AREA.344	AREA.345	AREA.346	AREA.347	AREA.348	AREA.349	AREA.350	AREA.351	AREA.352	AREA.353	AREA.354	AREA.355	AREA.356	AREA.357	AREA.358	AREA.359	AREA.360	AREA.361	AREA.362	AREA.363	AREA.364	AREA.365	AREA.366	AREA.367	AREA.368	AREA.369	AREA.370	AREA.371	AREA.372	AREA.373	AREA.374	AREA.375	AREA.376	AREA.377	AREA.378	AREA.379	AREA.380	AREA.381	AREA.382	AREA.383	AREA.384	AREA.385	AREA.386	AREA.387	AREA.388	AREA.389	AREA.390	AREA.391	AREA.392	AREA.393	AREA.394	AREA.395	AREA.396	AREA.397	AREA.398	AREA.399	AREA.400	AREA.401	AREA.402	AREA.403	AREA.404	AREA.405	AREA.406	AREA.407	AREA.408	AREA.409	AREA.410	AREA.411	AREA.412	AREA.413	AREA.414	AREA.415	AREA.416	AREA.417	AREA.418	AREA.419	AREA.420	AREA.421	AREA.422	AREA.423	AREA.424	AREA.425	AREA.426	AREA.427	AREA.428	AREA.429	AREA.430	AREA.431	AREA.432	AREA.433	AREA.434	AREA.435	AREA.436	AREA.437	AREA.438	AREA.439	AREA.440	AREA.441	AREA.442	AREA.443	AREA.444	AREA.445	AREA.446	AREA.447	AREA.448	AREA.449	AREA.450	AREA.451	AREA.452	AREA.453	AREA.454	AREA.455	AREA.456	AREA.457	AREA.458	AREA.459	AREA.460	AREA.461	AREA.462	AREA.463	AREA.464	AREA.465	AREA.466	AREA.467	AREA.468	AREA.469	AREA.470	AREA.471	AREA.472	AREA.473	AREA.474	AREA.475	AREA.476	AREA.477	AREA.478	AREA.479	AREA.480	AREA.481	AREA.482	AREA.483	AREA.484	AREA.485	AREA.486	AREA.487	AREA.488	AREA.489	AREA.490	AREA.491	AREA.492	AREA.493	AREA.494	AREA.495	AREA.496	AREA.497	AREA.498	AREA.499	AREA.500	AREA.501	AREA.502	AREA.503	AREA.504	AREA.505	AREA.506	AREA.507	AREA.508	AREA.509	AREA.510	AREA.511	AREA.512	AREA.513	AREA.514	AREA.515	AREA.516	AREA.517	AREA.518	AREA.519	AREA.520	AREA.521	AREA.522	AREA.523	AREA.524	AREA.525	AREA.526	AREA.527	AREA.528	AREA.529	AREA.530	AREA.531	AREA.532	AREA.533	AREA.534	AREA.535	AREA.536	AREA.537	AREA.538	AREA.539	AREA.540	AREA.541	AREA.542	AREA.543	AREA.544	AREA.545	AREA.546	AREA.547	AREA.548	AREA.549	AREA.550	AREA.551	AREA.552	AREA.553	AREA.554	AREA.555	AREA.556	AREA.557	AREA.558	AREA.559	AREA.560	AREA.561	AREA.562	AREA.563	AREA.564	AREA.565	AREA.566	AREA.567	AREA.568	AREA.569	AREA.570	AREA.571	AREA.572	AREA.573	AREA.574	AREA.575	AREA.576	AREA.577	AREA.578	AREA.579	AREA.580	AREA.581	AREA.582	AREA.583	AREA.584	AREA.585	AREA.586	AREA.587	AREA.588	AREA.589	AREA.590	AREA.591	AREA.592	AREA.593	AREA.594	AREA.595	AREA.596	AREA.597	AREA.598	AREA.599	AREA.600	AREA.601	AREA.602	AREA.603	AREA.604	AREA.605	AREA.606	AREA.607	AREA.608	AREA.609	AREA.610	AREA.611	AREA.612	AREA.613	AREA.614	AREA.615	AREA.616	AREA.617	AREA.618	AREA.619	AREA.620	AREA.621	AREA.622	AREA.623	AREA.624	AREA.625	AREA.626	AREA.627	AREA.628	AREA.629	AREA.630	AREA.631	AREA.632	AREA.633	AREA.634	AREA.635	AREA.636	AREA.637	AREA.638	AREA.639	AREA.640	AREA.641	AREA.642	AREA.643	AREA.644	AREA.645	AREA.646	AREA.647	AREA.648	AREA.649	AREA.650	AREA.651	AREA.652	AREA.653	AREA.654	AREA.655	AREA.656	AREA.657	AREA.658	AREA.659	AREA.660	AREA.661	AREA.662	AREA.663	AREA.664	AREA.665	AREA.666	AREA.667	AREA.668	AREA.669	AREA.670	AREA.671	AREA.672	AREA.673	AREA.674	AREA.675	AREA.676	AREA.677	AREA.678	AREA.679	AREA.680	AREA.681	AREA.682	AREA.683	AREA.684	AREA.685	AREA.686	AREA.687	AREA.688	AREA.689	AREA.690	AREA.691	AREA.692	AREA.693	AREA.694	AREA.695	AREA.696	AREA.697	AREA.698	AREA.699	AREA.700	AREA.701	AREA.702	AREA.703	AREA.704	AREA.705	AREA.706	AREA.707	AREA.708	AREA.709	AREA.710	AREA.711	AREA.712	AREA.713	AREA.714	AREA.715	AREA.716	AREA.717	AREA.718	AREA.719	AREA.720	AREA.721	AREA.722	AREA.723	AREA.724	AREA.725	AREA.726	AREA.727	AREA.728	AREA.729	AREA.730	AREA.731	AREA.732	AREA.733	AREA.734	AREA.735	AREA.736	AREA.737	AREA.738	AREA.739	AREA.740	AREA.741	AREA.742	AREA.743	AREA.744	AREA.745	AREA.746	AREA.747	AREA.748	AREA.749	AREA.750	AREA.751	AREA.752	AREA.753	AREA.754	AREA.755	AREA.756	AREA.757	AREA.758	AREA.759	AREA.760	AREA.761	AREA.762	AREA.763	AREA.764	AREA.765	AREA.766	AREA.767	AREA.768	AREA.769	AREA.770	AREA.771	AREA.772	AREA.773	AREA.774	AREA.775	AREA.776	AREA.777	AREA.778	AREA.779	AREA.780	AREA.781	AREA.782	AREA.783	AREA.784	AREA.785	AREA.786	AREA.787	AREA.788	AREA.789	AREA.790	AREA.791	AREA.792	AREA.793	AREA.794	AREA.795	AREA.796	AREA.797	AREA.798	AREA.799	AREA.800	AREA.801	AREA.802	AREA.803	AREA.804	AREA.805	AREA.806	AREA.807	AREA.808	AREA.809	AREA.810	AREA.811	AREA.812	AREA.813	AREA.814	AREA.815	AREA.816	AREA.817	AREA.818	AREA.819	AREA.820	AREA.821	AREA.822	AREA.823	AREA.824	AREA.825	AREA.826	AREA.827	AREA.828	AREA.829	AREA.830	AREA.831	AREA.832	AREA.833	AREA.834	AREA.835	AREA.836	AREA.837	AREA.838	AREA.839	AREA.840	AREA.841	AREA.842	AREA.843	AREA.844	AREA.845	AREA.846	AREA.847	AREA.848	AREA.849	AREA.850	AREA.851	AREA.852	AREA.853	AREA.854	AREA.855	AREA.856	AREA.857	AREA.858	AREA.859	AREA.860	AREA.861	AREA.862	AREA.863	AREA.864	AREA.865	AREA.866	AREA.867	AREA.868	AREA.869	AREA.870	AREA.871	AREA.872	AREA.873	AREA.874	AREA.875	AREA.876	AREA.877	AREA.878	AREA.879	AREA.880	AREA.881	AREA.882	AREA.883	AREA.884	AREA.885	AREA.886	AREA.887	AREA.888	AREA.889	AREA.890	AREA.891	AREA.892	AREA.893	AREA.894	AREA.895	AREA.896	AREA.897	AREA.898	AREA.899	AREA.900	AREA.901	AREA.902	AREA.903	AREA.904	AREA.905	AREA.906	AREA.907	AREA.908	AREA.909	AREA.910	AREA.911	AREA.912	AREA.913	AREA.914	AREA.915	AREA.916	AREA.917	AREA.918	AREA.919	AREA.920	AREA.921	AREA.922	AREA.923	AREA.924	AREA.925	AREA.926	AREA.927	AREA.928	AREA.929	AREA.930	AREA.931	AREA.932	AREA.933	AREA.934	AREA.935	AREA.936	AREA.937	AREA.938	AREA.939	AREA.940	AREA.941	AREA.942	AREA.943	AREA.944	AREA.945	AREA.946	AREA.947	AREA.948	AREA.949	AREA.950	AREA.951	AREA.952	AREA.953	AREA.954	AREA.955	AREA.956	AREA.957	AREA.958	AREA.959	AREA.960	AREA.961	AREA.962	AREA.963	AREA.964	AREA.965	AREA.966	AREA.967	AREA.968	AREA.969	AREA.970	AREA.971	AREA.972	AREA.973	AREA.974	AREA.975	AREA.976	AREA.977	AREA.978	AREA.979	AREA.980	AREA.981	AREA.982	AREA.983	AREA.984	AREA.985	AREA.986	AREA.987	AREA.988	AREA.989	AREA.990	AREA.991	AREA.992	AREA.993	AREA.994	AREA.995	AREA.996	AREA.997	AREA.998	AREA.999	AREA.1000
		VIRUS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

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PCGENE	ALLNOTES	ALL VARIANTS (see heterologues)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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Accession	Strain	Host	Pathogen	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10	Area 11	Area 12	Area 13	Area 14	Area 15	Area 16	Area 17	Area 18	Area 19	Area 20	Area 21	Area 22	Area 23	Area 24	Area 25	Area 26	Area 27	Area 28	Area 29	Area 30	Area 31	Area 32	Area 33	Area 34	Area 35	Area 36	Area 37	Area 38	Area 39	Area 40	Area 41	Area 42	Area 43	Area 44	Area 45	Area 46	Area 47	Area 48	Area 49	Area 50	Area 51	Area 52	Area 53	Area 54	Area 55	Area 56	Area 57	Area 58	Area 59	Area 60	Area 61	Area 62	Area 63	Area 64	Area 65	Area 66	Area 67	Area 68	Area 69	Area 70	Area 71	Area 72	Area 73	Area 74	Area 75	Area 76	Area 77	Area 78	Area 79	Area 80	Area 81	Area 82	Area 83	Area 84	Area 85	Area 86	Area 87	Area 88	Area 89	Area 90	Area 91	Area 92	Area 93	Area 94	Area 95	Area 96	Area 97	Area 98	Area 99	Area 100	Area 101	Area 102	Area 103	Area 104	Area 105	Area 106	Area 107	Area 108	Area 109	Area 110	Area 111	Area 112	Area 113	Area 114	Area 115	Area 116	Area 117	Area 118	Area 119	Area 120	Area 121	Area 122	Area 123	Area 124	Area 125	Area 126	Area 127	Area 128	Area 129	Area 130	Area 131	Area 132	Area 133	Area 134	Area 135	Area 136	Area 137	Area 138	Area 139	Area 140	Area 141	Area 142	Area 143	Area 144	Area 145	Area 146	Area 147	Area 148	Area 149	Area 150	Area 151	Area 152	Area 153	Area 154	Area 155	Area 156	Area 157	Area 158	Area 159	Area 160	Area 161	Area 162	Area 163	Area 164	Area 165	Area 166	Area 167	Area 168	Area 169	Area 170	Area 171	Area 172	Area 173	Area 174	Area 175	Area 176	Area 177	Area 178	Area 179	Area 180	Area 181	Area 182	Area 183	Area 184	Area 185	Area 186	Area 187	Area 188	Area 189	Area 190	Area 191	Area 192	Area 193	Area 194	Area 195	Area 196	Area 197	Area 198	Area 199	Area 200	Area 201	Area 202	Area 203	Area 204	Area 205	Area 206	Area 207	Area 208	Area 209	Area 210	Area 211	Area 212	Area 213	Area 214	Area 215	Area 216	Area 217	Area 218	Area 219	Area 220	Area 221	Area 222	Area 223	Area 224	Area 225	Area 226	Area 227	Area 228	Area 229	Area 230	Area 231	Area 232	Area 233	Area 234	Area 235	Area 236	Area 237	Area 238	Area 239	Area 240	Area 241	Area 242	Area 243	Area 244	Area 245	Area 246	Area 247	Area 248	Area 249	Area 250	Area 251	Area 252	Area 253	Area 254	Area 255	Area 256	Area 257	Area 258	Area 259	Area 260	Area 261	Area 262	Area 263	Area 264	Area 265	Area 266	Area 267	Area 268	Area 269	Area 270	Area 271	Area 272	Area 273	Area 274	Area 275	Area 276	Area 277	Area 278	Area 279	Area 280	Area 281	Area 282	Area 283	Area 284	Area 285	Area 286	Area 287	Area 288	Area 289	Area 290	Area 291	Area 292	Area 293	Area 294	Area 295	Area 296	Area 297	Area 298	Area 299	Area 300	Area 301	Area 302	Area 303	Area 304	Area 305	Area 306	Area 307	Area 308	Area 309	Area 310	Area 311	Area 312	Area 313	Area 314	Area 315	Area 316	Area 317	Area 318	Area 319	Area 320	Area 321	Area 322	Area 323	Area 324	Area 325	Area 326	Area 327	Area 328	Area 329	Area 330	Area 331	Area 332	Area 333	Area 334	Area 335	Area 336	Area 337	Area 338	Area 339	Area 340	Area 341	Area 342	Area 343	Area 344	Area 345	Area 346	Area 347	Area 348	Area 349	Area 350	Area 351	Area 352	Area 353	Area 354	Area 355	Area 356	Area 357	Area 358	Area 359	Area 360	Area 361	Area 362	Area 363	Area 364	Area 365	Area 366	Area 367	Area 368	Area 369	Area 370	Area 371	Area 372	Area 373	Area 374	Area 375	Area 376	Area 377	Area 378	Area 379	Area 380	Area 381	Area 382	Area 383	Area 384	Area 385	Area 386	Area 387	Area 388	Area 389	Area 390	Area 391	Area 392	Area 393	Area 394	Area 395	Area 396	Area 397	Area 398	Area 399	Area 400	Area 401	Area 402	Area 403	Area 404	Area 405	Area 406	Area 407	Area 408	Area 409	Area 410	Area 411	Area 412	Area 413	Area 414	Area 415	Area 416	Area 4
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[illegible]

ACCESION	ALLNOTES	AB Virus (as Bacteriophage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8
PTC001	PROTEIN	VIRUS								
PTC002	SEQUE PROTEINASE INHIBITOR 1	VIRUS								
PTC003	SEQUE PROTEINASE INHIBITOR 2	VIRUS								
PTC004	SEQUE PROTEINASE INHIBITOR 3	VIRUS								
PTC005	TYPE II RESTRICTION ENZYME CHAIN	VIRUS								
PTC006	TRANS-ACTIVATING PROTEIN A1	VIRUS								
PTC007	TRANS-ACTIVATING PROTEIN A2	VIRUS								
PTC008	TRANS-ACTIVATING PROTEIN A3	VIRUS								
PTC009	TRANS-ACTIVATING PROTEIN A4	VIRUS								
PTC010	TRANS-ACTIVATING PROTEIN A5	VIRUS								
PTC011	TRANS-ACTIVATING PROTEIN A6	VIRUS								
PTC012	TRANS-ACTIVATING PROTEIN A7	VIRUS								
PTC013	TRANS-ACTIVATING PROTEIN A8	VIRUS								
PTC014	TRANS-ACTIVATING PROTEIN A9	VIRUS								
PTC015	TRANS-ACTIVATING PROTEIN A10	VIRUS								
PTC016	TRANS-ACTIVATING PROTEIN A11	VIRUS								
PTC017	TRANS-ACTIVATING PROTEIN A12	VIRUS								
PTC018	TRANS-ACTIVATING PROTEIN A13	VIRUS								
PTC019	TRANS-ACTIVATING PROTEIN A14	VIRUS								
PTC020	TRANS-ACTIVATING PROTEIN A15	VIRUS								
PTC021	TRANS-ACTIVATING PROTEIN A16	VIRUS								
PTC022	TRANS-ACTIVATING PROTEIN A17	VIRUS								
PTC023	TRANS-ACTIVATING PROTEIN A18	VIRUS								
PTC024	TRANS-ACTIVATING PROTEIN A19	VIRUS								
PTC025	TRANS-ACTIVATING PROTEIN A20	VIRUS								
PTC026	TRANS-ACTIVATING PROTEIN A21	VIRUS								
PTC027	TRANS-ACTIVATING PROTEIN A22	VIRUS								
PTC028	TRANS-ACTIVATING PROTEIN A23	VIRUS								
PTC029	TRANS-ACTIVATING PROTEIN A24	VIRUS								
PTC030	TRANS-ACTIVATING PROTEIN A25	VIRUS								
PTC031	TRANS-ACTIVATING PROTEIN A26	VIRUS								
PTC032	TRANS-ACTIVATING PROTEIN A27	VIRUS								
PTC033	TRANS-ACTIVATING PROTEIN A28	VIRUS								
PTC034	TRANS-ACTIVATING PROTEIN A29	VIRUS								
PTC035	TRANS-ACTIVATING PROTEIN A30	VIRUS								
PTC036	TRANS-ACTIVATING PROTEIN A31	VIRUS								
PTC037	TRANS-ACTIVATING PROTEIN A32	VIRUS								
PTC038	TRANS-ACTIVATING PROTEIN A33	VIRUS								
PTC039	TRANS-ACTIVATING PROTEIN A34	VIRUS								
PTC040	TRANS-ACTIVATING PROTEIN A35	VIRUS								
PTC041	TRANS-ACTIVATING PROTEIN A36	VIRUS								
PTC042	TRANS-ACTIVATING PROTEIN A37	VIRUS								
PTC043	TRANS-ACTIVATING PROTEIN A38	VIRUS								
PTC044	TRANS-ACTIVATING PROTEIN A39	VIRUS								
PTC045	TRANS-ACTIVATING PROTEIN A40	VIRUS								
PTC046	TRANS-ACTIVATING PROTEIN A41	VIRUS								
PTC047	TRANS-ACTIVATING PROTEIN A42	VIRUS								
PTC048	TRANS-ACTIVATING PROTEIN A43	VIRUS								
PTC049	TRANS-ACTIVATING PROTEIN A44	VIRUS								
PTC050	TRANS-ACTIVATING PROTEIN A45	VIRUS								
PTC051	TRANS-ACTIVATING PROTEIN A46	VIRUS								
PTC052	TRANS-ACTIVATING PROTEIN A47	VIRUS								
PTC053	TRANS-ACTIVATING PROTEIN A48	VIRUS								
PTC054	TRANS-ACTIVATING PROTEIN A49	VIRUS								
PTC055	TRANS-ACTIVATING PROTEIN A50	VIRUS								
PTC056	TRANS-ACTIVATING PROTEIN A51	VIRUS								
PTC057	TRANS-ACTIVATING PROTEIN A52									

ECORE	ALLNOTES	ALT Virus (no background)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
ALLNOTES	PROTEIN	HUMAN ADENOVIRUS TYPE 12	401-401		497-531																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

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ECODE	ALLIOTIS	AB Virus (see International)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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ACCIDENT	ALLIANCE	YEAR	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 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676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
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111		AREA 112		AREA 113		AREA 114		AREA 115		AREA 116		AREA 117		AREA 118		AREA 119		AREA 120		AREA 121		AREA 122		AREA 123		AREA 124		AREA 125		AREA 126		AREA 127		AREA 128		AREA 129		AREA 130		AREA 131		AREA 132		AREA 133		AREA 134		AREA 135		AREA 136		AREA 137		AREA 138		AREA 139		AREA 140		AREA 141		AREA 142		AREA 143		AREA 144		AREA 145		AREA 146		AREA 147		AREA 148		AREA 149		AREA 150		AREA 151		AREA 152		AREA 153		AREA 154		AREA 155		AREA 156		AREA 157		AREA 158		AREA 159		AREA 160		AREA 161		AREA 162		AREA 163		AREA 164		AREA 165		AREA 166		AREA 167		AREA 168		AREA 169		AREA 170		AREA 171		AREA 172		AREA 173		AREA 174		AREA 175		AREA 176		AREA 177		AREA 178		AREA 179		AREA 180		AREA 181		AREA 182		AREA 183		AREA 184		AREA 185		AREA 186		AREA 187		AREA 188		AREA 189		AREA 190		AREA 191		AREA 192		AREA 193		AREA 194		AREA 195		AREA 196		AREA 197		AREA 198		AREA 199		AREA 200		AREA 201		AREA 202		AREA 203		AREA 204		AREA 205		AREA 206		AREA 207		AREA 208		AREA 209		AREA 210		AREA 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311		AREA 312		AREA 313		AREA 314		AREA 315		AREA 316		AREA 317		AREA 318		AREA 319		AREA 320		AREA 321		AREA 322		AREA 323		AREA 324		AREA 325		AREA 326		AREA 327		AREA 328		AREA 329		AREA 330		AREA 331		AREA 332		AREA 333		AREA 334		AREA 335		AREA 336		AREA 337		AREA 338		AREA 339		AREA 340		AREA 341		AREA 342		AREA 343		AREA 344		AREA 345		AREA 346		AREA 347		AREA 348		AREA 349		AREA 350		AREA 351		AREA 352		AREA 353		AREA 354		AREA 355		AREA 356		AREA 357		AREA 358		AREA 359		AREA 360		AREA 361		AREA 362		AREA 363		AREA 364		AREA 365		AREA 366		AREA 367		AREA 368		AREA 369		AREA 370		AREA 371		AREA 372		AREA 373		AREA 374		AREA 375		AREA 376		AREA 377		AREA 378		AREA 379		AREA 380		AREA 381		AREA 382		AREA 383		AREA 384		AREA 385		AREA 386		AREA 387		AREA 388		AREA 389		AREA 390		AREA 391		AREA 392		AREA 393		AREA 394		AREA 395		AREA 396		AREA 397		AREA 398		AREA 399		AREA 400		AREA 401		AREA 402		AREA 403		AREA 404		AREA 405		AREA 406		AREA 407		AREA 408		AREA 409		AREA 410		AREA 411		AREA 412		AREA 413		AREA 414		AREA 415		AREA 416		AREA 417		AREA 418		AREA 419		AREA 420		AREA 421		AREA 422		AREA 423		AREA 424		AREA 425		AREA 426		AREA 427		AREA 428		AREA 429		AREA 430		AREA 431		AREA 432		AREA 433		AREA 434		AREA 435		AREA 436		AREA 437		AREA 438		AREA 439		AREA 440		AREA 441		AREA 442		AREA 443		AREA 444		AREA 445		AREA 446		AREA 447		AREA 448		AREA 449		AREA 450		AREA 451		AREA 452		AREA 453		AREA 454		AREA 455		AREA 456		AREA 457		AREA 458		AREA 459		AREA 460		AREA 461		AREA 462		AREA 463		AREA 464		AREA 465		AREA 466		AREA 467		AREA 468		AREA 469		AREA 470		AREA 471		AREA 472		AREA 473		AREA 474		AREA 475		AREA 476		AREA 477		AREA 478		AREA 479		AREA 480		AREA 481		AREA 482		AREA 483		AREA 484		AREA 485		AREA 486		AREA 487		AREA 488		AREA 489		AREA 490		AREA 491		AREA 492		AREA 493		AREA 494		AREA 495		AREA 496		AREA 497		AREA 498		AREA 499		AREA 500		AREA 501		AREA 502		AREA 503		AREA 504		AREA 505		AREA 506		AREA 507		AREA 508		AREA 509		AREA 510		AREA 511		AREA 512		AREA 513		AREA 514		AREA 515		AREA 516		AREA 517		AREA 518		AREA 519		AREA 520		AREA 521		AREA 522		AREA 523		AREA 524		AREA 525		AREA 526		AREA 527		AREA 528		AREA 529		AREA 530		AREA 531		AREA 532		AREA 533		AREA 534		AREA 535		AREA 536		AREA 537		AREA 538		AREA 539		AREA 540		AREA 541		AREA 542		AREA 543		AREA 544		AREA 545		AREA 546		AREA 547		AREA 548		AREA 549		AREA 550		AREA 551		AREA 552		AREA 553		AREA 554		AREA 555		AREA 556		AREA 557		AREA 558		AREA 559		AREA 560		AREA 561		AREA 562		AREA 563		AREA 564		AREA 565		AREA 566		AREA 567		AREA 568		AREA 569		AREA 570		AREA 571		AREA 572		AREA 573		AREA 574		AREA 575		AREA 576		AREA 577		AREA 578		AREA 579		AREA 580		AREA 581		AREA 582		AREA 583		AREA 584		AREA 585		AREA 586		AREA 587		AREA 588		AREA 589		AREA 590		AREA 591		AREA 592		AREA 593		AREA 594		AREA 595		AREA 596		AREA 597		AREA 598		AREA 599		AREA 600		AREA 601		AREA 602		AREA 603		AREA 604		AREA 605		AREA 606		AREA 607		AREA 608		AREA 609		AREA 610		AREA 611		AREA 612		AREA 613		AREA 614		AREA 615		AREA 616		AREA 617		AREA 618		AREA 619		AREA 620		AREA 621		AREA 622		AREA 623		AREA 624		AREA 625		AREA 626		AREA 627		AREA 628		AREA 629		AREA 630		AREA 631		AREA 632		AREA 633		AREA 634		AREA 635		AREA 636		AREA 637		AREA 638		AREA 639		AREA 640		AREA 641		AREA 642		AREA 643		AREA 644		AREA 645		AREA 646		AREA 647		AREA 648		AREA 649		AREA 650		AREA 651		AREA 652		AREA 653		AREA 654		AREA 655		AREA 656		AREA 657		AREA 658		AREA 659		AREA 660		AREA 661		AREA 662		AREA 663		AREA 664		AREA 665		AREA 666		AREA 667		AREA 668		AREA 669		AREA 670		AREA 671		AREA 672		AREA 673		AREA 674		AREA 675		AREA 676		AREA 677		AREA 678		AREA 679		AREA 680		AREA 681		AREA 682		AREA 683		AREA 684		AREA 685		AREA 686		AREA 687		AREA 688		AREA 689		AREA 690		AREA 691		AREA 692		AREA 693		AREA 694		AREA 695		AREA 696		AREA 697		AREA 698		AREA 699		AREA 700		AREA 701		AREA 702		AREA 703		AREA 704		AREA 705		AREA 706		AREA 707		AREA 708		AREA 709		AREA 710		AREA 711		AREA 712		AREA 713		AREA 714		AREA 715		AREA 716		AREA 717		AREA 718		AREA 719		AREA 720		AREA 721		AREA 722		AREA 723		AREA 724		AREA 725		AREA 726		AREA 727		AREA 728		AREA 729		AREA 730		AREA 731		AREA 732		AREA 733		AREA 734		AREA 735		AREA 736		AREA 737		AREA 738		AREA 739		AREA 740		AREA 741		AREA 742		AREA 743		AREA 744		AREA 745		AREA 746		AREA 747		AREA 748		AREA 749		AREA 750		AREA 751		AREA 752		AREA 753		AREA 754		AREA 755		AREA 756		AREA 757		AREA 758		AREA 759		AREA 760		AREA 761		AREA 762		AREA 763		AREA 764		AREA 765		AREA 766		AREA 767		AREA 768		AREA 769		AREA 770		AREA 771		AREA 772		AREA 773		AREA 774		AREA 775		AREA 776		AREA 777		AREA 778		AREA 779		AREA 780		AREA 781		AREA 782		AREA 783		AREA 784		AREA 785		AREA 786		AREA 787		AREA 788		AREA 789		AREA 790		AREA 791		AREA 792		AREA 793		AREA 794		AREA 795		AREA 796		AREA 797		AREA 798		AREA 799		AREA 800		AREA 801		AREA 802		AREA 803		AREA 804		AREA 805		AREA 806		AREA 807		AREA 808		AREA 809		AREA 810		AREA 811		AREA 812		AREA 813		AREA 814		AREA 815		AREA 816		AREA 817		AREA 818		AREA 819		AREA 820		AREA 821		AREA 822		AREA 823		AREA 824		AREA 825		AREA 826		AREA 827		AREA 828		AREA 829		AREA 830		AREA 831		AREA 832		AREA 833		AREA 834		AREA 835		AREA 836		AREA 837		AREA 838		AREA 839		AREA 840		AREA 841		AREA 842		AREA 843		AREA 844		AREA 845		AREA 846		AREA 847		AREA 848		AREA 849		AREA 850		AREA 851		AREA 852		AREA 853		AREA 854		AREA 855		AREA 856		AREA 857		AREA 858		AREA 859		AREA 860		AREA 861		AREA 862		AREA 863		AREA 864		AREA 865		AREA 866		AREA 867		AREA 868		AREA 869		AREA 870		AREA 871		AREA 872		AREA 873		AREA 874		AREA 875		AREA 876		AREA 877		AREA 878		AREA 879		AREA 880		AREA 881		AREA 882		AREA 883		AREA 884		AREA 885		AREA 886		AREA 887		AREA 888		AREA 889		AREA 890		AREA 891		AREA 892		AREA 893		AREA 894		AREA 895		AREA 896		AREA 897		AREA 898		AREA 899		AREA 900		AREA 901		AREA 902		AREA 903		AREA 904		AREA 905		AREA 906		AREA 907		AREA 908		AREA 909		AREA 910		AREA 911		AREA 912		AREA 913		AREA 914		AREA 915		AREA 916		AREA 917		AREA 918		AREA 919		AREA 920		AREA 921		AREA 922		AREA 923		AREA 924		AREA 925		AREA 926		AREA 927		AREA 928		AREA 929		AREA 930		AREA 931		AREA 932		AREA 933		AREA 934		AREA 935		AREA 936		AREA 937		AREA 938		AREA 939		AREA 940		AREA 941		AREA 942		AREA 943		AREA 944		AREA 945		AREA 946		AREA 947		AREA 948		AREA 949		AREA 950		AREA 951		AREA 952		AREA 953		AREA 954		AREA 955		AREA 956		AREA 957		AREA 958		AREA 959		AREA 960		AREA 9	
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UN-CLASSIFIED	CLASSIFIED	PROTEIN	VIRUS	AREA J	AREA I	AREA J	AREA I	AREA J	AREA I
P101	P101	POI-1	POTATO VIRUS X (STRAIN CH/1954)	310-167					
P102	P102	POI-2	STRAWBERRY AILD YELLOW EDGE-ASSOCIATED VIRUS (STRAIN)	310-168					
P103	P103	POI-3	WHITE CLOVER MOSAIC VIRUS (STRAIN NJ/1954)	310-169					
P104	P104	POI-4	WHITE CLOVER MOSAIC VIRUS (STRAIN NY/1954)	310-170					
P105	P105	POI-5	AUTOGRAFA CALI DONICA NUCLEAR POLYOMORPHIC VIRUS (STRAIN)	310-171					
P106	P106	POI-6	ORCHID YELLOW DISEASE VIRUS (STRAIN AD/1954)	310-172					
P107	P107	POI-7	RICE BLACK STREAK DISEASE VIRUS (STRAIN)	310-173					
P108	P108	POI-8	RICE GALL DISEASE VIRUS (STRAIN)	310-174					
P109	P109	POI-9	WOUND TUMOR VIRUS (STRAIN)	310-175					
P110	P110	POI-10	RICE DWARF VIRUS (STRAIN)	310-176					
P111	P111	POI-11	RICE DWARF VIRUS (STRAIN)	310-177					
P112	P112	POI-12	RICE DWARF VIRUS (STRAIN)	310-178					
P113	P113	POI-13	RICE DWARF VIRUS (STRAIN)	310-179					
P114	P114	POI-14	RICE DWARF VIRUS (STRAIN)	310-180					
P115	P115	POI-15	RICE DWARF VIRUS (STRAIN)	310-181					
P116	P116	POI-16	RICE DWARF VIRUS (STRAIN)	310-182					
P117	P117	POI-17	RICE DWARF VIRUS (STRAIN)	310-183					
P118	P118	POI-18	RICE DWARF VIRUS (STRAIN)	310-184					
P119	P119	POI-19	RICE DWARF VIRUS (STRAIN)	310-185					
P120	P120	POI-20	RICE DWARF VIRUS (STRAIN)	310-186					
P121	P121	POI-21	RICE DWARF VIRUS (STRAIN)	310-187					
P122	P122	POI-22	RICE DWARF VIRUS (STRAIN)	310-188					
P123	P123	POI-23	RICE DWARF VIRUS (STRAIN)	310-189					
P124	P124	POI-24	RICE DWARF VIRUS (STRAIN)	310-190					
P125	P125	POI-25	RICE DWARF VIRUS (STRAIN)	310-191					
P126	P126	POI-26	RICE DWARF VIRUS (STRAIN)	310-192					
P127	P127	POI-27	RICE DWARF VIRUS (STRAIN)	310-193					
P128	P128	POI-28	RICE DWARF VIRUS (STRAIN)	310-194					
P129	P129	POI-29	RICE DWARF VIRUS (STRAIN)	310-195					
P130	P130	POI-30	RICE DWARF VIRUS (STRAIN)	310-196					
P131	P131	POI-31	RICE DWARF VIRUS (STRAIN)	310-197					
P132	P132	POI-32	RICE DWARF VIRUS (STRAIN)	310-198					
P133	P133	POI-33	RICE DWARF VIRUS (STRAIN)	310-199					
P134	P134	POI-34	RICE DWARF VIRUS (STRAIN)	310-200					
P135	P135	POI-35	RICE DWARF VIRUS (STRAIN)	310-201					
P136	P136	POI-36	RICE DWARF VIRUS (STRAIN)	310-202					
P137	P137	POI-37	RICE DWARF VIRUS (STRAIN)	310-203					
P138	P138	POI-38	RICE DWARF VIRUS (STRAIN)	310-204					
P139	P139	POI-39	RICE DWARF VIRUS (STRAIN)	310-205					
P140	P140	POI-40	RICE DWARF VIRUS (STRAIN)	310-206					
P141	P141	POI-41	RICE DWARF VIRUS (STRAIN)	310-207					
P142	P142	POI-42	RICE DWARF VIRUS (STRAIN)	310-208					
P143	P143	POI-43	RICE DWARF VIRUS (STRAIN)	310-209					
P144	P144	POI-44	RICE DWARF VIRUS (STRAIN)	310-210					
P145	P145								

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TABLE VI

107 X 178 X 4 SEARCH MOTIF RESULTS SUMMARY

FOR ALL VIRAL (NON-BACTERIOPHAGE) PROTEINS

[illegible]

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[illegible]

[illegible]

PCODE	(1)(1) (1)(4)	ALL Virus (see list below)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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FIGURE	INITIALS	ALL Viruses (no bacteriophage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
FIGURE	INITIALS	ALL Viruses (no bacteriophage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393</																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

[illegible]

FIGURE	10/1/2014	ABSTRACT (see description of figure)	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 454	AREA 455	AREA 456	AREA 457	AREA 458	AREA 459	AREA 460	AREA 461	AREA 462	AREA 463	AREA 464	AREA 465	AREA 466	AREA 467	AREA 468	AREA 469	AREA 470	AREA 471	AREA 472	AREA 473	AREA 474	AREA 475	AREA 476	AREA 477	AREA 478	AREA 479	AREA 480	AREA 481	AREA 482	AREA 483	AREA 484	AREA 485	AREA 486	AREA 487	AREA 488	AREA 489	AREA 490	AREA 491	AREA 492	AREA 493	AREA 494	AREA 495	AREA 496	AREA 497	AREA 498	AREA 499	AREA 500	AREA 501	AREA 502	AREA 503	AREA 504	AREA 505	AREA 506	AREA 507	AREA 508	AREA 509	AREA 510	AREA 511	AREA 512	AREA 513	AREA 514	AREA 515	AREA 516	AREA 517	AREA 518	AREA 519	AREA 520	AREA 521	AREA 522	AREA 523	AREA 524	AREA 525	AREA 526	AREA 527	AREA 528	AREA 529	AREA 530	AREA 531	AREA 532	AREA 533	AREA 534	AREA 535	AREA 536	AREA 537	AREA 538	AREA 539	AREA 540	AREA 541	AREA 542	AREA 543	AREA 544	AREA 545	AREA 546	AREA 547	AREA 548	AREA 549	AREA 550	AREA 551	AREA 552	AREA 553	AREA 554	AREA 555	AREA 556	AREA 557	AREA 558	AREA 559	AREA 560	AREA 561	AREA 562	AREA 563	AREA 564	AREA 565	AREA 566	AREA 567	AREA 568	AREA 569	AREA 570	AREA 571	AREA 572	AREA 573	AREA 574	AREA 575	AREA 576	AREA 577	AREA 578	AREA 579	AREA 580	AREA 581	AREA 582	AREA 583	AREA 584	AREA 585	AREA 586	AREA 587	AREA 588	AREA 589	AREA 590	AREA 591	AREA 592	AREA 593	AREA 594	AREA 595	AREA 596	AREA 597	AREA 598	AREA 599	AREA 600	AREA 601	AREA 602	AREA 603	AREA 604	AREA 605	AREA 606	AREA 607	AREA 608	AREA 609	AREA 610	AREA 611	AREA 612	AREA 613	AREA 614	AREA 615	AREA 616	AREA 617	AREA 618	AREA 619	AREA 620	AREA 621	AREA 622	AREA 623	AREA 624	AREA 625	AREA 626	AREA 627	AREA 628	AREA 629	AREA 630	AREA 631	AREA 632	AREA 633	AREA 634	AREA 635	AREA 636	AREA 637	AREA 638	AREA 639	AREA 640	AREA 641	AREA 642	AREA 643	AREA 644	AREA 645	AREA 646	AREA 647	AREA 648	AREA 649	AREA 650	AREA 651	AREA 652	AREA 653	AREA 654	AREA 655	AREA 656	AREA 657	AREA 658	AREA 659	AREA 660	AREA 661	AREA 662	AREA 663	AREA 664	AREA 665	AREA 666	AREA 667	AREA 668	AREA 669	AREA 670	AREA 671	AREA 672	AREA 673	AREA 674	AREA 675	AREA 676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
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[illegible]

GENE	INITIAL	ALL VIEWS (no bacteriophage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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RECEIPT	1911/1914	ALL Viruses (see bacteriophage list)	AREA.1	AREA.2	AREA.3	AREA.4	AREA.5	AREA.6	AREA.7	AREA.8	AREA.9	AREA.10	AREA.11	AREA.12	AREA.13	AREA.14	AREA.15	AREA.16	AREA.17	AREA.18	AREA.19	AREA.20	AREA.21	AREA.22	AREA.23	AREA.24	AREA.25	AREA.26	AREA.27	AREA.28	AREA.29	AREA.30	AREA.31	AREA.32	AREA.33	AREA.34	AREA.35	AREA.36	AREA.37	AREA.38	AREA.39	AREA.40	AREA.41	AREA.42	AREA.43	AREA.44	AREA.45	AREA.46	AREA.47	AREA.48	AREA.49	AREA.50	AREA.51	AREA.52	AREA.53	AREA.54	AREA.55	AREA.56	AREA.57	AREA.58	AREA.59	AREA.60	AREA.61	AREA.62	AREA.63	AREA.64	AREA.65	AREA.66	AREA.67	AREA.68	AREA.69	AREA.70	AREA.71	AREA.72	AREA.73	AREA.74	AREA.75	AREA.76	AREA.77	AREA.78	AREA.79	AREA.80	AREA.81	AREA.82	AREA.83	AREA.84	AREA.85	AREA.86	AREA.87	AREA.88	AREA.89	AREA.90	AREA.91	AREA.92	AREA.93	AREA.94	AREA.95	AREA.96	AREA.97	AREA.98	AREA.99	AREA.100	AREA.101	AREA.102	AREA.103	AREA.104	AREA.105	AREA.106	AREA.107	AREA.108	AREA.109	AREA.110	AREA.111	AREA.112	AREA.113	AREA.114	AREA.115	AREA.116	AREA.117	AREA.118	AREA.119	AREA.120	AREA.121	AREA.122	AREA.123	AREA.124	AREA.125	AREA.126	AREA.127	AREA.128	AREA.129	AREA.130	AREA.131	AREA.132	AREA.133	AREA.134	AREA.135	AREA.136	AREA.137	AREA.138	AREA.139	AREA.140	AREA.141	AREA.142	AREA.143	AREA.144	AREA.145	AREA.146	AREA.147	AREA.148	AREA.149	AREA.150	AREA.151	AREA.152	AREA.153	AREA.154	AREA.155	AREA.156	AREA.157	AREA.158	AREA.159	AREA.160	AREA.161	AREA.162	AREA.163	AREA.164	AREA.165	AREA.166	AREA.167	AREA.168	AREA.169	AREA.170	AREA.171	AREA.172	AREA.173	AREA.174	AREA.175	AREA.176	AREA.177	AREA.178	AREA.179	AREA.180	AREA.181	AREA.182	AREA.183	AREA.184	AREA.185	AREA.186	AREA.187	AREA.188	AREA.189	AREA.190	AREA.191	AREA.192	AREA.193	AREA.194	AREA.195	AREA.196	AREA.197	AREA.198	AREA.199	AREA.200	AREA.201	AREA.202	AREA.203	AREA.204	AREA.205	AREA.206	AREA.207	AREA.208	AREA.209	AREA.210	AREA.211	AREA.212	AREA.213	AREA.214	AREA.215	AREA.216	AREA.217	AREA.218	AREA.219	AREA.220	AREA.221	AREA.222	AREA.223	AREA.224	AREA.225	AREA.226	AREA.227	AREA.228	AREA.229	AREA.230	AREA.231	AREA.232	AREA.233	AREA.234	AREA.235	AREA.236	AREA.237	AREA.238	AREA.239	AREA.240	AREA.241	AREA.242	AREA.243	AREA.244	AREA.245	AREA.246	AREA.247	AREA.248	AREA.249	AREA.250	AREA.251	AREA.252	AREA.253	AREA.254	AREA.255	AREA.256	AREA.257	AREA.258	AREA.259	AREA.260	AREA.261	AREA.262	AREA.263	AREA.264	AREA.265	AREA.266	AREA.267	AREA.268	AREA.269	AREA.270	AREA.271	AREA.272	AREA.273	AREA.274	AREA.275	AREA.276	AREA.277	AREA.278	AREA.279	AREA.280	AREA.281	AREA.282	AREA.283	AREA.284	AREA.285	AREA.286	AREA.287	AREA.288	AREA.289	AREA.290	AREA.291	AREA.292	AREA.293	AREA.294	AREA.295	AREA.296	AREA.297	AREA.298	AREA.299	AREA.300	AREA.301	AREA.302	AREA.303	AREA.304	AREA.305	AREA.306	AREA.307	AREA.308	AREA.309	AREA.310	AREA.311	AREA.312	AREA.313	AREA.314	AREA.315	AREA.316	AREA.317	AREA.318	AREA.319	AREA.320	AREA.321	AREA.322	AREA.323	AREA.324	AREA.325	AREA.326	AREA.327	AREA.328	AREA.329	AREA.330	AREA.331	AREA.332	AREA.333	AREA.334	AREA.335	AREA.336	AREA.337	AREA.338	AREA.339	AREA.340	AREA.341	AREA.342	AREA.343	AREA.344	AREA.345	AREA.346	AREA.347	AREA.348	AREA.349	AREA.350	AREA.351	AREA.352	AREA.353	AREA.354	AREA.355	AREA.356	AREA.357	AREA.358	AREA.359	AREA.360	AREA.361	AREA.362	AREA.363	AREA.364	AREA.365	AREA.366	AREA.367	AREA.368	AREA.369	AREA.370	AREA.371	AREA.372	AREA.373	AREA.374	AREA.375	AREA.376	AREA.377	AREA.378	AREA.379	AREA.380	AREA.381	AREA.382	AREA.383	AREA.384	AREA.385	AREA.386	AREA.387	AREA.388	AREA.389	AREA.390	AREA.391	AREA.392	AREA.393	AREA.394	AREA.395	AREA.396	AREA.397	AREA.398	AREA.399	AREA.400	AREA.401	AREA.402	AREA.403	AREA.404	AREA.405	AREA.406	AREA.407	AREA.408	AREA.409	AREA.410	AREA.411	AREA.412	AREA.413	AREA.414	AREA.415	AREA.416	AREA.417	AREA.418	AREA.419	AREA.420	AREA.421	AREA.422	AREA.423	AREA.424	AREA.425	AREA.426	AREA.427	AREA.428	AREA.429	AREA.430	AREA.431	AREA.432	AREA.433	AREA.434	AREA.435	AREA.436	AREA.437	AREA.438	AREA.439	AREA.440	AREA.441	AREA.442	AREA.443	AREA.444	AREA.445	AREA.446	AREA.447	AREA.448	AREA.449	AREA.450	AREA.451	AREA.452	AREA.453	AREA.454	AREA.455	AREA.456	AREA.457	AREA.458	AREA.459	AREA.460	AREA.461	AREA.462	AREA.463	AREA.464	AREA.465	AREA.466	AREA.467	AREA.468	AREA.469	AREA.470	AREA.471	AREA.472	AREA.473	AREA.474	AREA.475	AREA.476	AREA.477	AREA.478	AREA.479	AREA.480	AREA.481	AREA.482	AREA.483	AREA.484	AREA.485	AREA.486	AREA.487	AREA.488	AREA.489	AREA.490	AREA.491	AREA.492	AREA.493	AREA.494	AREA.495	AREA.496	AREA.497	AREA.498	AREA.499	AREA.500	AREA.501	AREA.502	AREA.503	AREA.504	AREA.505	AREA.506	AREA.507	AREA.508	AREA.509	AREA.510	AREA.511	AREA.512	AREA.513	AREA.514	AREA.515	AREA.516	AREA.517	AREA.518	AREA.519	AREA.520	AREA.521	AREA.522	AREA.523	AREA.524	AREA.525	AREA.526	AREA.527	AREA.528	AREA.529	AREA.530	AREA.531	AREA.532	AREA.533	AREA.534	AREA.535	AREA.536	AREA.537	AREA.538	AREA.539	AREA.540	AREA.541	AREA.542	AREA.543	AREA.544	AREA.545	AREA.546	AREA.547	AREA.548	AREA.549	AREA.550	AREA.551	AREA.552	AREA.553	AREA.554	AREA.555	AREA.556	AREA.557	AREA.558	AREA.559	AREA.560	AREA.561	AREA.562	AREA.563	AREA.564	AREA.565	AREA.566	AREA.567	AREA.568	AREA.569	AREA.570	AREA.571	AREA.572	AREA.573	AREA.574	AREA.575	AREA.576	AREA.577	AREA.578	AREA.579	AREA.580	AREA.581	AREA.582	AREA.583	AREA.584	AREA.585	AREA.586	AREA.587	AREA.588	AREA.589	AREA.590	AREA.591	AREA.592	AREA.593	AREA.594	AREA.595	AREA.596	AREA.597	AREA.598	AREA.599	AREA.600	AREA.601	AREA.602	AREA.603	AREA.604	AREA.605	AREA.606	AREA.607	AREA.608	AREA.609	AREA.610	AREA.611	AREA.612	AREA.613	AREA.614	AREA.615	AREA.616	AREA.617	AREA.618	AREA.619	AREA.620	AREA.621	AREA.622	AREA.623	AREA.624	AREA.625	AREA.626	AREA.627	AREA.628	AREA.629	AREA.630	AREA.631	AREA.632	AREA.633	AREA.634	AREA.635	AREA.636	AREA.637	AREA.638	AREA.639	AREA.640	AREA.641	AREA.642	AREA.643	AREA.644	AREA.645	AREA.646	AREA.647	AREA.648	AREA.649	AREA.650	AREA.651	AREA.652	AREA.653	AREA.654	AREA.655	AREA.656	AREA.657	AREA.658	AREA.659	AREA.660	AREA.661	AREA.662	AREA.663	AREA.664	AREA.665	AREA.666	AREA.667	AREA.668	AREA.669	AREA.670	AREA.671	AREA.672	AREA.673	AREA.674	AREA.675	AREA.676	AREA.677	AREA.678	AREA.679	AREA.680	AREA.681	AREA.682	AREA.683	AREA.684	AREA.685	AREA.686	AREA.687	AREA.688	AREA.689	AREA.690	AREA.691	AREA.692	AREA.693	AREA.694	AREA.695	AREA.696	AREA.697	AREA.698	AREA.699	AREA.700	AREA.701	AREA.702	AREA.703	AREA.704	AREA.705	AREA.706	AREA.707	AREA.708	AREA.709	AREA.710	AREA.711	AREA.712	AREA.713	AREA.714	AREA.715	AREA.716	AREA.717	AREA.718	AREA.719	AREA.720	AREA.721	AREA.722	AREA.723	AREA.724	AREA.725	AREA.726	AREA.727	AREA.728	AREA.729	AREA.730	AREA.731	AREA.732	AREA.733	AREA.734	AREA.735	AREA.736	AREA.737	AREA.738	AREA.739	AREA.740	AREA.741	AREA.742	AREA.743	AREA.744	AREA.745	AREA.746	AREA.747	AREA.748	AREA.749	AREA.750	AREA.751	AREA.752	AREA.753	AREA.754	AREA.755	AREA.756	AREA.757	AREA.758	AREA.759	AREA.760	AREA.761	AREA.762	AREA.763	AREA.764	AREA.765	AREA.766	AREA.767	AREA.768	AREA.769	AREA.770	AREA.771	AREA.772	AREA.773	AREA.774	AREA.775	AREA.776	AREA.777	AREA.778	AREA.779	AREA.780	AREA.781	AREA.782	AREA.783	AREA.784	AREA.785	AREA.786	AREA.787	AREA.788	AREA.789	AREA.790	AREA.791	AREA.792	AREA.793	AREA.794	AREA.795	AREA.796	AREA.797	AREA.798	AREA.799	AREA.800	AREA.801	AREA.802	AREA.803	AREA.804	AREA.805	AREA.806	AREA.807	AREA.808	AREA.809	AREA.810	AREA.811	AREA.812	AREA.813	AREA.814	AREA.815	AREA.816	AREA.817	AREA.818	AREA.819	AREA.820	AREA.821	AREA.822	AREA.823	AREA.824	AREA.825	AREA.826	AREA.827	AREA.828	AREA.829	AREA.830	AREA.831	AREA.832	AREA.833	AREA.834	AREA.835	AREA.836	AREA.837	AREA.838	AREA.839	AREA.840	AREA.841	AREA.842	AREA.843	AREA.844	AREA.845	AREA.846	AREA.847	AREA.848	AREA.849	AREA.850	AREA.851	AREA.852	AREA.853	AREA.854	AREA.855	AREA.856	AREA.857	AREA.858	AREA.859	AREA.860	AREA.861	AREA.862	AREA.863	AREA.864	AREA.865	AREA.866	AREA.867	AREA.868	AREA.869	AREA.870	AREA.871	AREA.872	AREA.873	AREA.874	AREA.875	AREA.876	AREA.877	AREA.878	AREA.879	AREA.880	AREA.881	AREA.882	AREA.883	AREA.884	AREA.885	AREA.886	AREA.887	AREA.888	AREA.889	AREA.890	AREA.891	AREA.892	AREA.893	AREA.894	AREA.895	AREA.896	AREA.897	AREA.898	AREA.899	AREA.900	AREA.901	AREA.902	AREA.903	AREA.904	AREA.905	AREA.906	AREA.907	AREA.908	AREA.909	AREA.910	AREA.911	AREA.912	AREA.913	AREA.914	AREA.915	AREA.916	AREA.917	AREA.918	AREA.919	AREA.920	AREA.921	AREA.922	AREA.923	AREA.924	AREA.925	AREA.926	AREA.927	AREA.928	AREA.929	AREA.930	AREA.931	AREA.932	AREA.933	AREA.934	AREA.935	AREA.936	AREA.937	AREA.938	AREA.939	AREA.940	AREA.941	AREA.942	AREA.943	AREA.944	AREA.945	AREA.946	AREA.947	AREA.948	AREA.949	AREA.950	AREA.951	AREA.952	AREA.953	AREA.954	AREA.955	AREA.956	AREA.957	AREA.958	AREA.959	AREA.960	AREA.961	AREA.962	AREA.963	AREA.964	AREA.965	AREA.966	AREA.967	AREA.968	AREA.969	AREA.970	AREA.971	AREA.972	AREA.973	AREA.974	AREA.975	AREA.976	AREA.977	AREA.978	AREA.979	AREA.980	AREA.981	AREA.982	AREA.983	AREA.984	AREA.985	AREA.986	AREA.987	AREA.988	AREA.989	AREA.990	AREA.991	AREA.992	AREA.993	AREA.994	AREA.995	AREA.996	AREA.997	AREA.998	AREA.999	AREA.1000
RECEIPT	1911/1914	ALL Viruses (see bacteriophage list)	AREA.1	AREA.2	AREA.3	AREA.4	AREA.5	AREA.6	AREA.7	AREA.8	AREA.9	AREA.10	AREA.11	AREA.12	AREA.13	AREA.14	AREA.15	AREA.16	AREA.17	AREA.18	AREA.19	AREA.20	AREA.21	AREA.22	AREA.23	AREA.24	AREA.25	AREA.26	AREA.27	AREA.28	AREA.29	AREA.30	AREA.31	AREA.32	AREA.33	AREA.34	AREA.35	AREA.36	AREA.37	AREA.38	AREA.39	AREA.40	AREA.41	AREA.42	AREA.43	AREA.44	AREA.45	AREA.46	AREA.47	AREA.48	AREA.49	AREA.50	AREA.51	AREA.52	AREA.53	AREA.54	AREA.55	AREA.56	AREA.57	AREA.58	AREA.59	AREA.60	AREA.61	AREA.62	AREA.63	AREA.64	AREA.65	AREA.66	AREA.67	AREA.68	AREA.69	AREA.70	AREA.71	AREA.72	AREA.73	AREA.74	AREA.75	AREA.76	AREA.77	AREA.78	AREA.79	AREA.80	AREA.81	AREA.82	AREA.83	AREA.84	AREA.85	AREA.86	AREA.87	AREA.88	AREA.89	AREA.90	AREA.91	AREA.92	AREA.93	AREA.94	AREA.95	AREA.96	AREA.97	AREA.98	AREA.99	AREA.100	AREA.101	AREA.102	AREA.103	AREA.104	AREA.105	AREA.106	AREA.107	AREA.108	AREA.109	AREA.110	AREA.111	AREA.112	AREA.113	AREA.114	AREA.115	AREA.116	AREA.117	AREA.118	AREA.119	AREA.120	AREA.121	AREA.122	AREA.123	AREA.124	AREA.125	AREA.126	AREA.127	AREA.128	AREA.129	AREA.130	AREA.131	AREA.132	AREA.133	AREA.134	AREA.135	AREA.136	AREA.137	AREA.138	AREA.139	AREA.140	AREA.141	AREA.142	AREA.143	AREA.144	AREA.145	AREA.146	AREA.147	AREA.148	AREA.149	AREA.150	AREA.151	AREA.152	AREA.153	AREA.154	AREA.155	AREA.156	AREA.157	AREA.158	AREA.159	AREA.160	AREA.161	AREA.162	AREA.163	AREA.164	AREA.165	AREA.166	AREA.167	AREA.168	AREA.169	AREA.170	AREA.171	AREA.172	AREA.173	AREA.174	AREA.175	AREA.176	AREA.177	AREA.178	AREA.179	AREA.180	AREA.181	AREA.182	AREA.183	AREA.184	AREA.185	AREA.186	AREA.187	AREA.188	AREA.189	AREA.190	AREA.191	AREA.192	AREA.193	AREA.194	AREA.195	AREA.196	AREA.197	AREA.198	AREA.199	AREA.200	AREA.201	AREA.202	AREA.203	AREA.204	AREA.205	AREA.206	AREA.207	AREA.208	AREA.209	AREA.210	AREA.211	AREA.212	AREA.213	AREA.214	AREA.215	AREA.216	AREA.217	AREA.218	AREA.219	AREA.220	AREA.221	AREA.222	AREA.223	AREA.224	AREA.225	AREA.226	AREA.227	AREA.228	AREA.229	AREA.230	AREA.231	AREA.232	AREA.233	AREA.234	AREA.235	AREA.236	AREA.237	AREA.238	AREA.239	AREA.240	AREA.241	AREA.242	AREA.243	AREA.244	AREA.245	AREA.246	AREA.247	AREA.248	AREA.249	AREA.250	AREA.251	AREA.252																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

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PGCDNE	10111161	All Viruses (see biotechnology)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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[illegible]

Accession	Protein	10/11/14	All Viruses (see description for details)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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TABLE VII

107 X 178 X 4 SEARCH MOTIF RESULTS SUMMARY

(PREFERRED VIRAL SEQUENCES)

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TABLE VIII

107 X 178 X 4 SEARCH MOTIF RESULTS SUMMARY

FOR ALL PROCARYOTIC PROTEINS

[illegible]

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FIGURE	10011114	Prokaryotic Sequences	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA
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Proteinase Summary												
Protein	Accession	Length	Weight	PI	Species	Source	Accession	Length	Weight	PI	Species	Source
Proteinase	P00001	100	10000	5.0	Human	Human	P00001	100	10000	5.0	Human	Human
Proteinase	P00002	100	10000	5.0	Human	Human	P00002	100	10000	5.0	Human	Human
Proteinase	P00003	100	10000	5.0	Human	Human	P00003	100	10000	5.0	Human	Human
Proteinase	P00004	100	10000	5.0	Human	Human	P00004	100	10000	5.0	Human	Human
Proteinase	P00005	100	10000	5.0	Human	Human	P00005	100	10000	5.0	Human	Human
Proteinase	P00006	100	10000	5.0	Human	Human	P00006	100	10000	5.0	Human	Human
Proteinase	P00007	100	10000	5.0	Human	Human	P00007	100	10000	5.0	Human	Human
Proteinase	P00008	100	10000	5.0	Human	Human	P00008	100	10000	5.0	Human	Human
Proteinase	P00009	100	10000	5.0	Human	Human	P00009	100	10000	5.0	Human	Human
Proteinase	P00010	100	10000	5.0	Human	Human	P00010	100	10000	5.0	Human	Human
Proteinase	P00011	100	10000	5.0	Human	Human	P00011	100	10000	5.0	Human	Human
Proteinase	P00012	100	10000	5.0	Human	Human	P00012	100	10000	5.0	Human	Human
Proteinase	P00013	100	10000	5.0	Human	Human	P00013	100	10000	5.0	Human	Human
Proteinase	P00014	100	10000	5.0	Human	Human	P00014	100	10000	5.0	Human	Human
Proteinase	P00015	100	10000	5.0	Human	Human	P00015	100	10000	5.0	Human	Human
Proteinase	P00016	100	10000	5.0	Human	Human	P00016	100	10000	5.0	Human	Human
Proteinase	P00017	100	10000	5.0	Human	Human	P00017	100	10000	5.0	Human	Human
Proteinase	P00018	100	10000	5.0	Human	Human	P00018	100	10000	5.0	Human	Human
Proteinase	P00019	100	10000	5.0	Human	Human	P00019	100	10000	5.0	Human	Human
Proteinase	P00020	100	10000	5.0	Human	Human	P00020	100	10000	5.0	Human	Human
Proteinase	P00021	100	10000	5.0	Human	Human	P00021	100	10000	5.0	Human	Human
Proteinase	P00022	100	10000	5.0	Human	Human	P00022	100	10000	5.0	Human	Human
Proteinase	P00023	100	10000	5.0	Human	Human	P00023	100	10000	5.0	Human	Human
Proteinase	P00024	100	10000	5.0	Human	Human	P00024	100	10000	5.0	Human	Human
Proteinase	P00025	100	10000	5.0	Human	Human	P00025	100	10000	5.0	Human	Human
Proteinase	P00026	100	10000	5.0	Human	Human	P00026	100	10000	5.0	Human	Human
Proteinase	P00027	100	10000	5.0	Human	Human	P00027	100	10000	5.0	Human	Human
Proteinase	P00028	100	10000	5.0	Human	Human	P00028	100	10000	5.0	Human	Human
Proteinase	P00029	100	10000	5.0	Human	Human	P00029	100	10000	5.0	Human	Human
Proteinase	P00030	100	10000	5.0	Human	Human	P00030	100	10000	5.0	Human	Human
Proteinase	P00031	100	10000	5.0	Human	Human	P00031	100	10000	5.0	Human	Human
Proteinase	P00032	100	10000	5.0	Human	Human	P00032	100	10000	5.0	Human	Human
Proteinase	P00033	100	10000	5.0	Human	Human	P00033	100	10000	5.0	Human	Human
Proteinase	P00034	100	10000	5.0	Human	Human	P00034	100	10000	5.0	Human	Human
Proteinase	P00035	100	10000	5.0	Human	Human	P00035	100	10000	5.0	Human	Human
Proteinase	P00036	100	10000	5.0	Human	Human	P00036	100	10000	5.0	Human	Human
Proteinase	P00037	100	10000	5.0	Human	Human	P00037	100	10000	5.0	Human	Human
Proteinase	P00038	100	10000	5.0	Human	Human	P00038	100	10000	5.0	Human	Human
Proteinase	P00039	100	10000	5.0	Human	Human	P00039	100	10000	5.0	Human	Human
Proteinase	P00040	100	10000	5.0	Human	Human	P00040	100	10000	5.0	Human	Human
Proteinase	P00041	100	10000	5.0	Human	Human	P00041	100	10000	5.0	Human	Human
Proteinase	P00042	100	10000	5.0	Human	Human	P00042	100	10000	5.0	Human	Human
Proteinase	P00043	100	10000	5.0	Human	Human	P00043	100	10000	5.0	Human	Human
Proteinase	P00044	100	10000	5.0	Human	Human	P00044	100	10000	5.0	Human	Human
Proteinase	P00045	100	10000	5.0	Human	Human	P00045	100	10000	5.0	Human	Human
Proteinase	P00046	100	10000	5.0	Human	Human	P00046	100	10000	5.0	Human	Human
Proteinase	P00047	100	10000	5.0	Human	Human	P00047	100	10000	5.0	Human	Human
Proteinase	P00048	100	10000	5.0	Human	Human	P00048	100	10000	5.0	Human	Human
Proteinase	P00049	100	10000	5.0	Human	Human	P00049	100	10000	5.0	Human	Human
Proteinase	P00050	100	10000	5.0	Human	Human	P00050	100	10000	5.0	Human	Human
Proteinase	P00051	100	10000	5.0	Human	Human	P00051	100	10000	5.0	Human	Human
Proteinase	P00052	100	10000	5.0	Human	Human	P00052	100	10000	5.0	Human	Human
Proteinase	P00053	100	10000	5.0	Human	Human	P00053	100	10000	5.0	Human	Human
Proteinase	P00054	100	10000	5.0	Human	Human	P00054	100	10000	5.0	Human	Human
Proteinase	P00055	100	10000	5.0	Human	Human	P00055	100	10000	5.0	Human	Human
Proteinase	P00056	100	10000	5.0	Human	Human	P00056	100	10000	5.0	Human	Human
Proteinase	P00057	100	10000	5.0	Human	Human	P00057	100	10000	5.0	Human	Human
Proteinase	P00058	100	10000	5.0	Human	Human	P00058	100	10000	5.0	Human	Human
Proteinase	P00059	100	10000	5.0	Human	Human	P00059	100	10000	5.0	Human	Human
Proteinase	P00060	100	10000	5.0	Human	Human	P00060	100	10000	5.0	Human	Human
Proteinase	P00061	100	10000	5.0	Human	Human	P00061	100	10000	5.0	Human	Human
Proteinase	P00062	100	10000	5.0	Human	Human	P00062	100	10000	5.0	Human	Human
Proteinase	P00063	100	10000	5.0	Human	Human	P00063	100	10000	5.0	Human	Human
Proteinase	P00064	100	10000	5.0	Human	Human	P00064	100	10000	5.0	Human	Human
Proteinase	P00065	100	10000	5.0	Human	Human	P00065	100	10000	5.0	Human	Human
Proteinase	P00066	100	10000	5.0	Human	Human	P00066	100	10000	5.0	Human	Human
Proteinase	P00067	100	10000	5.0	Human	Human	P00067	100	10000	5.0	Human	Human
Proteinase	P00068	100	10000	5.0	Human	Human	P00068	100	10000	5.0	Human	Human
Proteinase	P00069	100	10000	5.0	Human	Human	P00069	100	10000	5.0	Human	Human
Proteinase	P00070	100	10000	5.0	Human	Human	P00070	100	10000	5.0	Human	Human
Proteinase	P00071	100	10000	5.0	Human	Human	P00071	100	10000	5.0	Human	Human
Proteinase	P00072	100	10000	5.0	Human	Human	P00072	100	10000	5.0	Human	Human
Proteinase	P00073	100	10000	5.0	Human	Human	P00073	100	10000	5.0	Human	Human
Proteinase	P00074	100	10000	5.0	Human	Human	P00074	100	10000	5.0	Human	Human
Proteinase	P00075	100	10000	5.0	Human	Human	P00075	100	10000	5.0	Human	Human
Proteinase	P00076	100	10000	5.0	Human	Human	P00076	100	10000	5.0	Human	Human
Proteinase	P00077	100	10000	5.0	Human	Human	P00077	100	10000	5.0	Human	Human
Proteinase	P00078	100	10000	5.0	Human	Human	P00078	100	10000	5.0	Human	Human
Proteinase	P00079	100	10000	5.0	Human	Human	P00079	100	10000	5.0	Human	Human
Proteinase	P00080	100	10000	5.0	Human	Human	P00080	100	10000	5.0	Human	Human
Proteinase	P00081	100	10000	5.0	Human	Human	P00081	100	10000	5.0	Human	Human
Proteinase	P00082	100	10000	5.0	Human	Human	P00082	100	10000	5.0	Human	Human
Proteinase	P00083	100	10000	5.0	Human	Human	P00083	100	10000	5.0	Human	Human
Proteinase	P00084	100	10000	5.0	Human	Human	P00084	100	10000	5.0	Human	Human
Proteinase	P00085	100	10000	5.0	Human	Human	P00085	100	10000	5.0	Human	Human
Proteinase	P00086	100	10000	5.0	Human	Human	P00086	100	10000	5.0	Human	Human
Proteinase	P00087	100	10000	5.0	Human	Human	P00087	100	10000	5.0	Human	Human
Proteinase	P00088	100	10000	5.0	Human	Human	P00088	100	10000	5.0	Human	Human
Proteinase	P00089	100	10000	5.0	Human	Human	P00089	100	10000	5.0	Human	Human
Proteinase	P00090	100	10000	5.0	Human	Human	P00090	100	10000	5.0	Human	Human
Proteinase	P00091	100	10000	5.0	Human	Human	P00091	100	10000	5.0	Human	Human
Proteinase	P00092	100	10000	5.0	Human	Human	P00092	100	10000	5.0	Human	Human
Proteinase	P00093	100	10000	5.0	Human	Human	P00093	100	10000	5.0	Human	Human
Proteinase	P00094	100	10000	5.0	Human	Human	P00094	100	10000	5.0	Human	Human
Proteinase	P00095	100	10000	5.0	Human	Human	P00095	100	10000	5.0	Human	Human
Proteinase	P00096	100	10000	5.0	Human	Human	P00096	100	10000	5.0	Human	Human
Proteinase	P00097	100	10000	5.0	Human	Human	P00097	100	10000	5.0	Human	Human
Proteinase	P00098	100	10000	5.0	Human	Human	P00098	100	10000	5.0	Human	Human
Proteinase	P00099	100	10000	5.0	Human	Human	P00099	100	10000	5.0	Human	Human
Proteinase	P00100	100	10000	5.0	Human	Human	P00100	100	10000	5.0	Human	Human

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[illegible]

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GENE	1001104	ORGANISM	Protein Description	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000	AREA1001	AREA1002	AREA1003	AREA1004	AREA1005	AREA1006	AREA1007	AREA1008	AREA1009	AREA1010	AREA1011	AREA1012	AREA1013	AREA1014	AREA1015	AREA1016	AREA1017	AREA1018	AREA1019	AREA1020	AREA1021	AREA1022	AREA1023	AREA1024	AREA1025	AREA1026	AREA1027	AREA1028	AREA1029	AREA1030	AREA1031	AREA1032	AREA1033	AREA1034	AREA1035	AREA1036	AREA1037	AREA1038	AREA1039	AREA1040	AREA1041	AREA1042	AREA1043	AREA1044	AREA1045	AREA1046	AREA1047	AREA1048	AREA1049	AREA1050	AREA1051	AREA1052	AREA1053	AREA1054	AREA1055	AREA1056	AREA1057	AREA1058	AREA1059	AREA1060	AREA1061	AREA1062	AREA1063	AREA1064	AREA1065	AREA1066	AREA1067	AREA1068	AREA1069	AREA1070	AREA1071	AREA1072	AREA1073	AREA1074	AREA1075	AREA1076	AREA1077	AREA1078	AREA1079	AREA1080	AREA1081	AREA1082	AREA1083	AREA1084	AREA1085	AREA1086	AREA1087	AREA1088	AREA1089	AREA1090	AREA1091	AREA1092	AREA1093	AREA1094	AREA1095	AREA1096	AREA1097	AREA1098	AREA1099	AREA1100	AREA1101	AREA1102	AREA1103	AREA1104	AREA1105	AREA1106	AREA1107	AREA1108	AREA1109	AREA1110	AREA1111	AREA1112	AREA1113	AREA1114	AREA1115	AREA1116	AREA1117	AREA1118	AREA1119	AREA1120	AREA1121	AREA1122	AREA1123	AREA1124	AREA1125	AREA1126	AREA1127	AREA1128	AREA1129	AREA1130	AREA1131	AREA1132	AREA1133	AREA1134	AREA1135	AREA1136	AREA1137	AREA1138	AREA1139	AREA1140	AREA1141	AREA1142	AREA1143	AREA1144	AREA1145	AREA1146	AREA1147	AREA1148	AREA1149	AREA1150	AREA1151	AREA1152	AREA1153	AREA1154	AREA1155	AREA1156	AREA1157	AREA1158	AREA1159	AREA1160	AREA1161	AREA1162	AREA1163	AREA1164	AREA1165	AREA1166	AREA1167	AREA1168	AREA1169	AREA1170	AREA1171	AREA1172	AREA1173	AREA1174	AREA1175	AREA1176	AREA1177	AREA1178	AREA1179	AREA1180	AREA1181	AREA1182	AREA1183	AREA1184	AREA1185	AREA1186	AREA1187	AREA1188	AREA1189	AREA1190	AREA1191	AREA1192	AREA1193	AREA1194	AREA1195	AREA1196	AREA1197	AREA1198	AREA1199	AREA1200	AREA1201	AREA1202	AREA1203	AREA1204	AREA1205	AREA1206	AREA1207	AREA1208	AREA1209	AREA1210	AREA1211	AREA1212	AREA1213	AREA1214	AREA1215	AREA1216	AREA1217	AREA1218	AREA1219	AREA1220	AREA1221	AREA1222	AREA1223	AREA1224	AREA1225	AREA1226	AREA1227	AREA1228	AREA1229	AREA1230	AREA1231	AREA1232	AREA1233	AREA1234	AREA1235	AREA1236	AREA1237	AREA1238	AREA1239	AREA1240	AREA1241	AREA1242	AREA1243	AREA1244	AREA1245	AREA1246	AREA1247	AREA1248	AREA1249	AREA1250	AREA1251	AREA1252	AREA1253	AREA1254	AREA1255	AREA1256	AREA1257	AREA1258	AREA1259	AREA1260	AREA1261	AREA1262	AREA1263	AREA1264	AREA1265	AREA1266	AREA1267	AREA1268	AREA1269	AREA1270	AREA1271	AREA1272	AREA1273	AREA1274	AREA1275	AREA1276	AREA1277	AREA1278	AREA1279	AREA1280	AREA1281	AREA1282	AREA1283	AREA1284	AREA1285	AREA1286	AREA1287	AREA1288	AREA1289	AREA1290	AREA1291	AREA1292	AREA1293	AREA1294	AREA1295	AREA1296	AREA1297	AREA1298	AREA1299	AREA1300	AREA1301	AREA1302	AREA1303	AREA1304	AREA1305	AREA1306	AREA1307	AREA1308	AREA1309	AREA1310	AREA1311	AREA1312	AREA1313	AREA1314	AREA1315	AREA1316	AREA1317	AREA1318	AREA1319	AREA1320	AREA1321	AREA1322	AREA1323	AREA1324	AREA1325	AREA1326	AREA1327	AREA1328	AREA1329	AREA1330	AREA1331	AREA1332	AREA1333	AREA1334	AREA1335	AREA1336	AREA1337	AREA1338	AREA1339	AREA1340	AREA1341	AREA1342	AREA1343	AREA1344	AREA1345	
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16/11/84	FCGUNE	FILE NAME	PROTEIN	Protein ont. 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A638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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Description	AA1	AA2	AA3	AA4	AA5	AA6	AA7	AA8	AA9	AA10	AA11	AA12	AA13	AA14	AA15	AA16	AA17	AA18	AA19	AA20	AA21	AA22	AA23	AA24	AA25	AA26	AA27	AA28	AA29	AA30	AA31	AA32	AA33	AA34	AA35	AA36	AA37	AA38	AA39	AA40	AA41	AA42	AA43	AA44	AA45	AA46	AA47	AA48	AA49	AA50	AA51	AA52	AA53	AA54	AA55	AA56	AA57	AA58	AA59	AA60	AA61	AA62	AA63	AA64	AA65	AA66	AA67	AA68	AA69	AA70	AA71	AA72	AA73	AA74	AA75	AA76	AA77	AA78	AA79	AA80	AA81	AA82	AA83	AA84	AA85	AA86	AA87	AA88	AA89	AA90	AA91	AA92	AA93	AA94	AA95	AA96	AA97	AA98	AA99	AA100	AA101	AA102	AA103	AA104	AA105	AA106	AA107	AA108	AA109	AA110	AA111	AA112	AA113	AA114	AA115	AA116	AA117	AA118	AA119	AA120	AA121	AA122	AA123	AA124	AA125	AA126	AA127	AA128	AA129	AA130	AA131	AA132	AA133	AA134	AA135	AA136	AA137	AA138	AA139	AA140	AA141	AA142	AA143	AA144	AA145	AA146	AA147	AA148	AA149	AA150	AA151	AA152	AA153	AA154	AA155	AA156	AA157	AA158	AA159	AA160	AA161	AA162	AA163	AA164	AA165	AA166	AA167	AA168	AA169	AA170	AA171	AA172	AA173	AA174	AA175	AA176	AA177	AA178	AA179	AA180	AA181	AA182	AA183	AA184	AA185	AA186	AA187	AA188	AA189	AA190	AA191	AA192	AA193	AA194	AA195	AA196	AA197	AA198	AA199	AA200	AA201	AA202	AA203	AA204	AA205	AA206	AA207	AA208	AA209	AA210	AA211	AA212	AA213	AA214	AA215	AA216	AA217	AA218	AA219	AA220	AA221	AA222	AA223	AA224	AA225	AA226	AA227	AA228	AA229	AA230	AA231	AA232	AA233	AA234	AA235	AA236	AA237	AA238	AA239	AA240	AA241	AA242	AA243	AA244	AA245	AA246	AA247	AA248	AA249	AA250	AA251	AA252	AA253	AA254	AA255	AA256	AA257	AA258	AA259	AA260	AA261	AA262	AA263	AA264	AA265	AA266	AA267	AA268	AA269	AA270	AA271	AA272	AA273	AA274	AA275	AA276	AA277	AA278	AA279	AA280	AA281	AA282	AA283	AA284	AA285	AA286	AA287	AA288	AA289	AA290	AA291	AA292	AA293	AA294	AA295	AA296	AA297	AA298	AA299	AA300	AA301	AA302	AA303	AA304	AA305	AA306	AA307	AA308	AA309	AA310	AA311	AA312	AA313	AA314	AA315	AA316	AA317	AA318	AA319	AA320	AA321	AA322	AA323	AA324	AA325	AA326	AA327	AA328	AA329	AA330	AA331	AA332	AA333	AA334	AA335	AA336	AA337	AA338	AA339	AA340	AA341	AA342	AA343	AA344	AA345	AA346	AA347	AA348	AA349	AA350	AA351	AA352	AA353	AA354	AA355	AA356	AA357	AA358	AA359	AA360	AA361	AA362	AA363	AA364	AA365	AA366	AA367	AA368	AA369	AA370	AA371	AA372	AA373	AA374	AA375	AA376	AA377	AA378	AA379	AA380	AA381	AA382	AA383	AA384	AA385	AA386	AA387	AA388	AA389	AA390	AA391	AA392	AA393	AA394	AA395	AA396	AA397	AA398	AA399	AA400	AA401	AA402	AA403	AA404	AA405	AA406	AA407	AA408	AA409	AA410	AA411	AA412	AA413	AA414	AA415	AA416	AA417	AA418	AA419	AA420	AA421	AA422	AA423	AA424	AA425	AA426	AA427	AA428	AA429	AA430	AA431	AA432	AA433	AA434	AA435	AA436	AA437	AA438	AA439	AA440	AA441	AA442	AA443	AA444	AA445	AA446	AA447	AA448	AA449	AA450	AA451	AA452	AA453	AA454	AA455	AA456	AA457	AA458	AA459	AA460	AA461	AA462	AA463	AA464	AA465	AA466	AA467	AA468	AA469	AA470	AA471	AA472	AA473	AA474	AA475	AA476	AA477	AA478	AA479	AA480	AA481	AA482	AA483	AA484	AA485	AA486	AA487	AA488	AA489	AA490	AA491	AA492	AA493	AA494	AA495	AA496	AA497	AA498	AA499	AA500	AA501	AA502	AA503	AA504	AA505	AA506	AA507	AA508	AA509	AA510	AA511	AA512	AA513	AA514	AA515	AA516	AA517	AA518	AA519	AA520	AA521	AA522	AA523	AA524	AA525	AA526	AA527	AA528	AA529	AA530	AA531	AA532	AA533	AA534	AA535	AA536	AA537	AA538	AA539	AA540	AA541	AA542	AA543	AA544	AA545	AA546	AA547	AA548	AA549	AA550	AA551	AA552	AA553	AA554	AA555	AA556	AA557	AA558	AA559	AA560	AA561	AA562	AA563	AA564	AA565	AA566	AA567	AA568	AA569	AA570	AA571	AA572	AA573	AA574	AA575	AA576	AA577	AA578	AA579	AA580	AA581	AA582	AA583	AA584	AA585	AA586	AA587	AA588	AA589	AA590	AA591	AA592	AA593	AA594	AA595	AA596	AA597	AA598	AA599	AA600	AA601	AA602	AA603	AA604	AA605	AA606	AA607	AA608	AA609	AA610	AA611	AA612	AA613	AA614	AA615	AA616	AA617	AA618	AA619	AA620	AA621	AA622	AA623	AA624	AA625	AA626	AA627	AA628	AA629	AA630	AA631	AA632	AA633	AA634	AA635	AA636	AA637	AA638	AA639	AA640	AA641	AA642	AA643	AA644	AA645	AA646	AA647	AA648	AA649	AA650	AA651	AA652	AA653	AA654	AA655	AA656	AA657	AA658	AA659	AA660	AA661	AA662	AA663	AA664	AA665	AA666	AA667	AA668	AA669	AA670	AA671	AA672	AA673	AA674	AA675	AA676	AA677	AA678	AA679	AA680	AA681	AA682	AA683	AA684	AA685	AA686	AA687	AA688	AA689	AA690	AA691	AA692	AA693	AA694	AA695	AA696	AA697	AA698	AA699	AA700	AA701	AA702	AA703	AA704	AA705	AA706	AA707	AA708	AA709	AA710	AA711	AA712	AA713	AA714	AA715	AA716	AA717	AA718	AA719	AA720	AA721	AA722	AA723	AA724	AA725	AA726	AA727	AA728	AA729	AA730	AA731	AA732	AA733	AA734	AA735	AA736	AA737	AA738	AA739	AA740	AA741	AA742	AA743	AA744	AA745	AA746	AA747	AA748	AA749	AA750	AA751	AA752	AA753	AA754	AA755	AA756	AA757	AA758	AA759	AA760	AA761	AA762	AA763	AA764	AA765	AA766	AA767	AA768	AA769	AA770	AA771	AA772	AA773	AA774	AA775	AA776	AA777	AA778	AA779	AA780	AA781	AA782	AA783	AA784	AA785	AA786	AA787	AA788	AA789	AA790	AA791	AA792	AA793	AA794	AA795	AA796	AA797	AA798	AA799	AA800	AA801	AA802	AA803	AA804	AA805	AA806	AA807	AA808	AA809	AA810	AA811	AA812	AA813	AA814	AA815	AA816	AA817	AA818	AA819	AA820	AA821	AA822	AA823	AA824	AA825	AA826	AA827	AA828	AA829	AA830	AA831	AA832	AA833	AA834	AA835	AA836	AA837	AA838	AA839	AA840	AA841	AA842	AA843	AA844	AA845	AA846	AA847	AA848	AA849	AA850	AA851	AA852	AA853	AA854	AA855	AA856	AA857	AA858	AA859	AA860	AA861	AA862	AA863	AA864	AA865	AA866	AA867	AA868	AA869	AA870	AA871	AA872	AA873	AA874	AA875	AA876	AA877	AA878	AA879	AA880	AA881	AA882	AA883	AA884	AA885	AA886	AA887	AA888	AA889	AA890	AA891	AA892	AA893	AA894	AA895	AA896	AA897	AA898	AA899	AA900	AA901	AA902	AA903	AA904	AA905	AA906	AA907	AA908	AA909	AA910	AA911	AA912	AA913	AA914	AA915	AA916	AA917	AA918	AA919	AA920	AA921	AA922	AA923	AA924	AA925	AA926	AA927	AA928	AA929	AA930	AA931	AA932	AA933	AA934	AA935	AA936	AA937	AA938	AA939	AA940	AA941	AA942	AA943	AA944	AA945	AA946	AA947	AA948	AA949	AA950	AA951	AA952	AA953	AA954	AA955	AA956	AA957	AA958	AA959	AA960	AA961	AA962	AA963	AA964	AA965	AA966	AA967	AA968	AA969	AA970	AA971	AA972	AA973	AA974	AA975	AA976	AA977	AA978	AA979	AA980	AA981	AA982	AA983	AA984	AA985	AA986	AA987	AA988	AA989	AA990	AA991	AA992	AA993	AA994	AA995	AA996	AA997	AA998	AA999	AA1000
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Accession		Protein name		AA1	AA2	AA3	AA4	AA5	AA6	AA7	AA8	AA9	AA10	AA11	AA12	AA13	AA14	AA15	AA16	AA17	AA18	AA19	AA20	AA21	AA22	AA23	AA24	AA25	AA26	AA27	AA28	AA29	AA30	AA31	AA32	AA33	AA34	AA35	AA36	AA37	AA38	AA39	AA40	AA41	AA42	AA43	AA44	AA45	AA46	AA47	AA48	AA49	AA50	AA51	AA52	AA53	AA54	AA55	AA56	AA57	AA58	AA59	AA60	AA61	AA62	AA63	AA64	AA65	AA66	AA67	AA68	AA69	AA70	AA71	AA72	AA73	AA74	AA75	AA76	AA77	AA78	AA79	AA80	AA81	AA82	AA83	AA84	AA85	AA86	AA87	AA88	AA89	AA90	AA91	AA92	AA93	AA94	AA95	AA96	AA97	AA98	AA99	AA100	AA101	AA102	AA103	AA104	AA105	AA106	AA107	AA108	AA109	AA110	AA111	AA112	AA113	AA114	AA115	AA116	AA117	AA118	AA119	AA120	AA121	AA122	AA123	AA124	AA125	AA126	AA127	AA128	AA129	AA130	AA131	AA132	AA133	AA134	AA135	AA136	AA137	AA138	AA139	AA140	AA141	AA142	AA143	AA144	AA145	AA146	AA147	AA148	AA149	AA150	AA151	AA152	AA153	AA154	AA155	AA156	AA157	AA158	AA159	AA160	AA161	AA162	AA163	AA164	AA165	AA166	AA167	AA168	AA169	AA170	AA171	AA172	AA173	AA174	AA175	AA176	AA177	AA178	AA179	AA180	AA181	AA182	AA183	AA184	AA185	AA186	AA187	AA188	AA189	AA190	AA191	AA192	AA193	AA194	AA195	AA196	AA197	AA198	AA199	AA200	AA201	AA202	AA203	AA204	AA205	AA206	AA207	AA208	AA209	AA210	AA211	AA212	AA213	AA214	AA215	AA216	AA217	AA218	AA219	AA220	AA221	AA222	AA223	AA224	AA225	AA226	AA227	AA228	AA229	AA230	AA231	AA232	AA233	AA234	AA235	AA236	AA237	AA238	AA239	AA240	AA241	AA242	AA243	AA244	AA245	AA246	AA247	AA248	AA249	AA250	AA251	AA252	AA253	AA254	AA255	AA256	AA257	AA258	AA259	AA260	AA261	AA262	AA263	AA264	AA265	AA266	AA267	AA268	AA269	AA270	AA271	AA272	AA273	AA274	AA275	AA276	AA277	AA278	AA279	AA280	AA281	AA282	AA283	AA284	AA285	AA286	AA287	AA288	AA289	AA290	AA291	AA292	AA293	AA294	AA295	AA296	AA297	AA298	AA299	AA300	AA301	AA302	AA303	AA304	AA305	AA306	AA307	AA308	AA309	AA310	AA311	AA312	AA313	AA314	AA315	AA316	AA317	AA318	AA319	AA320	AA321	AA322	AA323	AA324	AA325	AA326	AA327	AA328	AA329	AA330	AA331	AA332	AA333	AA334	AA335	AA336	AA337	AA338	AA339	AA340	AA341	AA342	AA343	AA344	AA345	AA346	AA347	AA348	AA349	AA350	AA351	AA352	AA353	AA354	AA355	AA356	AA357	AA358	AA359	AA360	AA361	AA362	AA363	AA364	AA365	AA366	AA367	AA368	AA369	AA370	AA371	AA372	AA373	AA374	AA375	AA376	AA377	AA378	AA379	AA380	AA381	AA382	AA383	AA384	AA385	AA386	AA387	AA388	AA389	AA390	AA391	AA392	AA393	AA394	AA395	AA396	AA397	AA398	AA399	AA400	AA401	AA402	AA403	AA404	AA405	AA406	AA407	AA408	AA409	AA410	AA411	AA412	AA413	AA414	AA415	AA416	AA417	AA418	AA419	AA420	AA421	AA422	AA423	AA424	AA425	AA426	AA427	AA428	AA429	AA430	AA431	AA432	AA433	AA434	AA435	AA436	AA437	AA438	AA439	AA440	AA441	AA442	AA443	AA444	AA445	AA446	AA447	AA448	AA449	AA450	AA451	AA452	AA453	AA454	AA455	AA456	AA457	AA458	AA459	AA460	AA461	AA462	AA463	AA464	AA465	AA466	AA467	AA468	AA469	AA470	AA471	AA472	AA473	AA474	AA475	AA476	AA477	AA478	AA479	AA480	AA481	AA482	AA483	AA484	AA485	AA486	AA487	AA488	AA489	AA490	AA491	AA492	AA493	AA494	AA495	AA496	AA497	AA498	AA499	AA500	AA501	AA502	AA503	AA504	AA505	AA506	AA507	AA508	AA509	AA510	AA511	AA512	AA513	AA514	AA515	AA516	AA517	AA518	AA519	AA520	AA521	AA522	AA523	AA524	AA525	AA526	AA527	AA528	AA529	AA530	AA531	AA532	AA533	AA534	AA535	AA536	AA537	AA538	AA539	AA540	AA541	AA542	AA543	AA544	AA545	AA546	AA547	AA548	AA549	AA550	AA551	AA552	AA553	AA554	AA555	AA556	AA557	AA558	AA559	AA560	AA561	AA562	AA563	AA564	AA565	AA566	AA567	AA568	AA569	AA570	AA571	AA572	AA573	AA574	AA575	AA576	AA577	AA578	AA579	AA580	AA581	AA582	AA583	AA584	AA585	AA586	AA587	AA588	AA589	AA590	AA591	AA592	AA593	AA594	AA595	AA596	AA597	AA598	AA599	AA600	AA601	AA602	AA603	AA604	AA605	AA606	AA607	AA608	AA609	AA610	AA611	AA612	AA613	AA614	AA615	AA616	AA617	AA618	AA619	AA620	AA621	AA622	AA623	AA624	AA625	AA626	AA627	AA628	AA629	AA630	AA631	AA632	AA633	AA634	AA635	AA636	AA637	AA638	AA639	AA640	AA641	AA642	AA643	AA644	AA645	AA646	AA647	AA648	AA649	AA650	AA651	AA652	AA653	AA654	AA655	AA656	AA657	AA658	AA659	AA660	AA661	AA662	AA663	AA664	AA665	AA666	AA667	AA668	AA669	AA670	AA671	AA672	AA673	AA674	AA675	AA676	AA677	AA678	AA679	AA680	AA681	AA682	AA683	AA684	AA685	AA686	AA687	AA688	AA689	AA690	AA691	AA692	AA693	AA694	AA695	AA696	AA697	AA698	AA699	AA700	AA701	AA702	AA703	AA704	AA705	AA706	AA707	AA708	AA709	AA710	AA711	AA712	AA713	AA714	AA715	AA716	AA717	AA718	AA719	AA720	AA721	AA722	AA723	AA724	AA725	AA726	AA727	AA728	AA729	AA730	AA731	AA732	AA733	AA734	AA735	AA736	AA737	AA738	AA739	AA740	AA741	AA742	AA743	AA744	AA745	AA746	AA747	AA748	AA749	AA750	AA751	AA752	AA753	AA754	AA755	AA756	AA757	AA758	AA759	AA760	AA761	AA762	AA763	AA764	AA765	AA766	AA767	AA768	AA769	AA770	AA771	AA772	AA773	AA774	AA775	AA776	AA777	AA778	AA779	AA780	AA781	AA782	AA783	AA784	AA785	AA786	AA787	AA788	AA789	AA790	AA791	AA792	AA793	AA794	AA795	AA796	AA797	AA798	AA799	AA800	AA801	AA802	AA803	AA804	AA805	AA806	AA807	AA808	AA809	AA810	AA811	AA812	AA813	AA814	AA815	AA816	AA817	AA818	AA819	AA820	AA821	AA822	AA823	AA824	AA825	AA826	AA827	AA828	AA829	AA830	AA831	AA832	AA833	AA834	AA835	AA836	AA837	AA838	AA839	AA840	AA841	AA842	AA843	AA844	AA845	AA846	AA847	AA848	AA849	AA850	AA851	AA852	AA853	AA854	AA855	AA856	AA857	AA858	AA859	AA860	AA861	AA862	AA863	AA864	AA865	AA866	AA867	AA868	AA869	AA870	AA871	AA872	AA873	AA874	AA875	AA876	AA877	AA878	AA879	AA880	AA881	AA882	AA883	AA884	AA885	AA886	AA887	AA888	AA889	AA890	AA891	AA892	AA893	AA894	AA895	AA896	AA897	AA898	AA899	AA900	AA901	AA902	AA903	AA904	AA905	AA906	AA907	AA908	AA909	AA910	AA911	AA912	AA913	AA914	AA915	AA916	AA917	AA918	AA919	AA920	AA921	AA922	AA923	AA924	AA925	AA926	AA927	AA928	AA929	AA930	AA931	AA932	AA933	AA934	AA935	AA936	AA937	AA938	AA939	AA940	AA941	AA942	AA943	AA944	AA945	AA946	AA947	AA948	AA949	AA950	AA951	AA952	AA953	AA954	AA955	AA956	AA957	AA958	AA959	AA960	AA961	AA962	AA963	AA964	AA965	AA966	AA967	AA968	AA969	AA970	AA971	AA972	AA973	AA974	AA975	AA976	AA977	AA978	AA979	AA980	AA981	AA982	AA983	AA984	AA985	AA986	AA987	AA988	AA989	AA990	AA991	AA992	AA993	AA994	AA995	AA996	AA997	AA998	AA999	AA1000
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GENE	1981/1984	Proteolytic Sequences	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378
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EC	NAME	1011114	Protein list	ABPA1	ABPA2	ABPA3	ABPA4	ABPA5	ABPA6	ABPA7	ABPA8	ABPA9	ABPA10	ABPA11	ABPA12	ABPA13	ABPA14	ABPA15	ABPA16	ABPA17	ABPA18	ABPA19	ABPA20	ABPA21	ABPA22	ABPA23	ABPA24	ABPA25	ABPA26	ABPA27	ABPA28	ABPA29	ABPA30	ABPA31	ABPA32	ABPA33	ABPA34	ABPA35	ABPA36	ABPA37	ABPA38	ABPA39	ABPA40	ABPA41	ABPA42	ABPA43	ABPA44	ABPA45	ABPA46	ABPA47	ABPA48	ABPA49	ABPA50	ABPA51	ABPA52	ABPA53	ABPA54	ABPA55	ABPA56	ABPA57	ABPA58	ABPA59	ABPA60	ABPA61	ABPA62	ABPA63	ABPA64	ABPA65	ABPA66	ABPA67	ABPA68	ABPA69	ABPA70	ABPA71	ABPA72	ABPA73	ABPA74	ABPA75	ABPA76	ABPA77	ABPA78	ABPA79	ABPA80	ABPA81	ABPA82	ABPA83	ABPA84	ABPA85	ABPA86	ABPA87	ABPA88	ABPA89	ABPA90	ABPA91	ABPA92	ABPA93	ABPA94	ABPA95	ABPA96	ABPA97	ABPA98	ABPA99	ABPA100	ABPA101	ABPA102	ABPA103	ABPA104	ABPA105	ABPA106	ABPA107	ABPA108	ABPA109	ABPA110	ABPA111	ABPA112	ABPA113	ABPA114	ABPA115	ABPA116	ABPA117	ABPA118	ABPA119	ABPA120	ABPA121	ABPA122	ABPA123	ABPA124	ABPA125	ABPA126	ABPA127	ABPA128	ABPA129	ABPA130	ABPA131	ABPA132	ABPA133	ABPA134	ABPA135	ABPA136	ABPA137	ABPA138	ABPA139	ABPA140	ABPA141	ABPA142	ABPA143	ABPA144	ABPA145	ABPA146	ABPA147	ABPA148	ABPA149	ABPA150	ABPA151	ABPA152	ABPA153	ABPA154	ABPA155	ABPA156	ABPA157	ABPA158	ABPA159	ABPA160	ABPA161	ABPA162	ABPA163	ABPA164	ABPA165	ABPA166	ABPA167	ABPA168	ABPA169	ABPA170	ABPA171	ABPA172	ABPA173	ABPA174	ABPA175	ABPA176	ABPA177	ABPA178	ABPA179	ABPA180	ABPA181	ABPA182	ABPA183	ABPA184	ABPA185	ABPA186	ABPA187	ABPA188	ABPA189	ABPA190	ABPA191	ABPA192	ABPA193	ABPA194	ABPA195	ABPA196	ABPA197	ABPA198	ABPA199	ABPA200	ABPA201	ABPA202	ABPA203	ABPA204	ABPA205	ABPA206	ABPA207	ABPA208	ABPA209	ABPA210	ABPA211	ABPA212	ABPA213	ABPA214	ABPA215	ABPA216	ABPA217	ABPA218	ABPA219	ABPA220	ABPA221	ABPA222	ABPA223	ABPA224	ABPA225	ABPA226	ABPA227	ABPA228	ABPA229	ABPA230	ABPA231	ABPA232	ABPA233	ABPA234	ABPA235	ABPA236	ABPA237	ABPA238	ABPA239	ABPA240	ABPA241	ABPA242	ABPA243	ABPA244	ABPA245	ABPA246	ABPA247	ABPA248	ABPA249	ABPA250	ABPA251	ABPA252	ABPA253	ABPA254	ABPA255	ABPA256	ABPA257	ABPA258	ABPA259	ABPA260	ABPA261	ABPA262	ABPA263	ABPA264	ABPA265	ABPA266	ABPA267	ABPA268	ABPA269	ABPA270	ABPA271	ABPA272	ABPA273	ABPA274	ABPA275	ABPA276	ABPA277	ABPA278	ABPA279	ABPA280	ABPA281	ABPA282	ABPA283	ABPA284	ABPA285	ABPA286	ABPA287	ABPA288	ABPA289	ABPA290	ABPA291	ABPA292	ABPA293	ABPA294	ABPA295	ABPA296	ABPA297	ABPA298	ABPA299	ABPA300	ABPA301	ABPA302	ABPA303	ABPA304	ABPA305	ABPA306	ABPA307	ABPA308	ABPA309	ABPA310	ABPA311	ABPA312	ABPA313	ABPA314	ABPA315	ABPA316	ABPA317	ABPA318	ABPA319	ABPA320	ABPA321	ABPA322	ABPA323	ABPA324	ABPA325	ABPA326	ABPA327	ABPA328	ABPA329	ABPA330	ABPA331	ABPA332	ABPA333	ABPA334	ABPA335	ABPA336	ABPA337	ABPA338	ABPA339	ABPA340	ABPA341	ABPA342	ABPA343	ABPA344	ABPA345	ABPA346	ABPA347	ABPA348	ABPA349	ABPA350	ABPA351	ABPA352	ABPA353	ABPA354	ABPA355	ABPA356	ABPA357	ABPA358	ABPA359	ABPA360	ABPA361	ABPA362	ABPA363	ABPA364	ABPA365	ABPA366	ABPA367	ABPA368	ABPA369	ABPA370	ABPA371	ABPA372	ABPA373	ABPA374	ABPA375	ABPA376	ABPA377	ABPA378	ABPA379	ABPA380	ABPA381	ABPA382	ABPA383	ABPA384	ABPA385	ABPA386	ABPA387	ABPA388	ABPA389	ABPA390	ABPA391	ABPA392	ABPA393	ABPA394	ABPA395	ABPA396	ABPA397	ABPA398	ABPA399	ABPA400	ABPA401	ABPA402	ABPA403	ABPA404	ABPA405	ABPA406	ABPA407	ABPA408	ABPA409	ABPA410	ABPA411	ABPA412	ABPA413	ABPA414	ABPA415	ABPA416
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EC	ENZYME	1971-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024	2025-2029	2030-2034	2035-2039	2040-2044	2045-2049	2050-2054	2055-2059	2060-2064	2065-2069	2070-2074	2075-2079	2080-2084	2085-2089	2090-2094	2095-2099	2100-2104	2105-2109	2110-2114	2115-2119	2120-2124	2125-2129	2130-2134	2135-2139	2140-2144	2145-2149	2150-2154	2155-2159	2160-2164	2165-2169	2170-2174	2175-2179	2180-2184	2185-2189	2190-2194	2195-2199	2200-2204	2205-2209	2210-2214	2215-2219	2220-2224	2225-2229	2230-2234	2235-2239	2240-2244	2245-2249	2250-2254	2255-2259	2260-2264	2265-2269	2270-2274	2275-2279	2280-2284	2285-2289	2290-2294	2295-2299	2300-2304	2305-2309	2310-2314	2315-2319	2320-2324	2325-2329	2330-2334	2335-2339	2340-2344	2345-2349	2350-2354	2355-2359	2360-2364	2365-2369	2370-2374	2375-2379	2380-2384	2385-2389	2390-2394	2395-2399	2400-2404	2405-2409	2410-2414	2415-2419	2420-2424	2425-2429	2430-2434	2435-2439	2440-2444	2445-2449	2450-2454	2455-2459	2460-2464	2465-2469	2470-2474	2475-2479	2480-2484	2485-2489	2490-2494	2495-2499	2500-2504	2505-2509	2510-2514	2515-2519	2520-2524	2525-2529	2530-2534	2535-2539	2540-2544	2545-2549	2550-2554	2555-2559	2560-2564	2565-2569	2570-2574	2575-2579	2580-2584	2585-2589	2590-2594	2595-2599	2600-2604	2605-2609	2610-2614	2615-2619	2620-2624	2625-2629	2630-2634	2635-2639	2640-2644	2645-2649	2650-2654	2655-2659	2660-2664	2665-2669	2670-2674	2675-2679	2680-2684	2685-2689	2690-2694	2695-2699	2700-2704	2705-2709	2710-2714	2715-2719	2720-2724	2725-2729	2730-2734	2735-2739	2740-2744	2745-2749	2750-2754	2755-2759	2760-2764	2765-2769	2770-2774	2775-2779	2780-2784	2785-2789	2790-2794	2795-2799	2800-2804	2805-2809	2810-2814	2815-2819	2820-2824	2825-2829	2830-2834	2835-2839	2840-2844	2845-2849	2850-2854	2855-2859	2860-2864	2865-2869	2870-2874	2875-2879	2880-2884	2885-2889	2890-2894	2895-2899	2900-2904	2905-2909	2910-2914	2915-2919	2920-2924	2925-2929	2930-2934	2935-2939	2940-2944	2945-2949	2950-2954	2955-2959	2960-2964	2965-2969	2970-2974	2975-2979	2980-2984	2985-2989	2990-2994	2995-2999	3000-3004	3005-3009	3010-3014	3015-3019	3020-3024	3025-3029	3030-3034	3035-3039	3040-3044	3045-3049	3050-3054	3055-3059	3060-3064	3065-3069	3070-3074	3075-3079	3080-3084	3085-3089	3090-3094	3095-3099	3100-3104	3105-3109	3110-3114	3115-3119	3120-3124	3125-3129	3130-3134	3135-3139	3140-3144	3145-3149	3150-3154	3155-3159	3160-3164	3165-3169	3170-3174	3175-3179	3180-3184	3185-3189	3190-3194	3195-3199	3200-3204	3205-3209	3210-3214	3215-3219	3220-3224	3225-3229	3230-3234	3235-3239	3240-3244	3245-3249	3250-3254	3255-3259	3260-3264	3265-3269	3270-3274	3275-3279	3280-3284	3285-3289	3290-3294	3295-3299	3300-3304	3305-3309	3310-3314	3315-3319	3320-3324	3325-3329	3330-3334	3335-3339	3340-3344	3345-3349	3350-3354	3355-3359	3360-3364	3365-3369	3370-3374	3375-3379	3380-3384	3385-3389	3390-3394	3395-3399	3400-3404	3405-3409	3410-3414	3415-3419	3420-3424	3425-3429	3430-3434	3435-3439	3440-3444	3445-3449	3450-3454	3455-3459	3460-3464	3465-3469	3470-3474	3475-3479	3480-3484	3485-3489	3490-3494	3495-3499	3500-3504	3505-3509	3510-3514	3515-3519	3520-3524	3525-3529	3530-3534	3535-3539	3540-3544	3545-3549	3550-3554	3555-3559	3560-3564	3565-3569	3570-3574	3575-3579	3580-3584	3585-3589	3590-3594	3595-3599	3600-3604	3605-3609	3610-3614	3615-3619	3620-3624	3625-3629	3630-3634	3635-3639	3640-3644	3645-3649	3650-3654	3655-3659	3660-3664	3665-3669	3670-3674	3675-3679	3680-3684	3685-3689	3690-3694	3695-3699	3700-3704	3705-3709	3710-3714	3715-3719	3720-3724	3725-3729	3730-3734	3735-3739	3740-3744	3745-3749	3750-3754	3755-3759	3760-3764	3765-3769	3770-3774	3775-3779	3780-3784	3785-3789	3790-3794	3795-3799	3800-3804	3805-3809	3810-3814	3815-3819	3820-3824	3825-3829	3830-3834	3835-3839	3840-3844	3845-3849	3850-3854	3855-3859	3860-3864	3865-3869	3870-3874	3875-3879	3880-3884	3885-3889	3890-3894	3895-3899	3900-3904	3905-3909	3910-3914	3915-3919	3920-3924	3925-3929	3930-3934	3935-3939	3940-3944	3945-3949	3950-3954	3955-3959	3960-3964	3965-3969	3970-3974	3975-3979	3980-3984	3985-3989	3990-3994	3995-3999	4000-4004	4005-4009	4010-4014	4015-4019	4020-4024	4025-4029	4030-4034	4035-4039	4040-4044	4045-4049	4050-4054	4055-4059	4060-4064	4065-4069	4070-4074	4075-4079	4080-4084	4085-4089	4090-4094	4095-4099	4100-4104	4105-4109	4110-4114	4115-4119	4120-4124	4125-4129	4130-4134	4135-4139	4140-4144	4145-4149	4150-4154	4155-4159	4160-4164	4165-4169	4170-4174	4175-4179	4180-4184	4185-4189	4190-4194	4195-4199	4200-4204	4205-4209	4210-4214	4215-4219	4220-4224	4225-4229	4230-4234	4235-4239	4240-4244	4245-4249	4250-4254	4255-4259	4260-4264	4265-4269	4270-4274	4275-4279	4280-4284	4285-4289	4290-4294	4295-4299	4300-4304	4305-4309	4310-4314	4315-4319	4320-4324	4325-4329	4330-4334	4335-4339	4340-4344	4345-4349	4350-4354	4355-4359	4360-4364	4365-4369	4370-4374	4375-4379	4380-4384	4385-4389	4390-4394	4395-4399	4400-4404	4405-4409	4410-4414	4415-4419	4420-4424	4425-4429	4430-4434	4435-4439	4440-4444	4445-4449	4450-4454	4455-4459	4460-4464	4465-4469	4470-4474	4475-4479	4480-4484	4485-4489	4490-4494	4495-4499	4500-4504	4505-4509	4510-4514	4515-4519	4520-4524	4525-4529	4530-4534	4535-4539	4540-4544	4545-4549	4550-4554	4555-4559	4560-4564	4565-4569	4570-4574	4575-4579	4580-4584	4585-4589	4590-4594	4595-4599	4600-4604	4605-4609	4610-4614	4615-4619	4620-4624	4625-4629	4630-4634	4635-4639	4640-4644	4645-4649	4650-4654	4655-4659	4660-4664	4665-4669	4670-4674	4675-4679	4680-4684	4685-4689	4690-4694	4695-4699	4700-4704	4705-4709	4710-4714	4715-4719	4720-4724	4725-4729	4730-4734	4735-4739	4740-4744	4745-4749	4750-4754	4755-4759	4760-4764	4765-4769	4770-4774	4775-4779	4780-4784	4785-4789	4790-4794	4795-4799	4800-4804	4805-4809	4810-4814	4815-4819	4820-4824	4825-4829	4830-4834	4835-4839	4840-4844	4845-4849	4850-4854	4855-4859	4860-4864	4865-4869	4870-4874	4875-4879	4880-4884	4885-4889	4890-4894	4895-4899	4900-4904	4905-4909	4910-4914	4915-4919	4920-4924	4925-4929	4930-4934	4935-4939	4940-4944	4945-4949	4950-4954	4955-4959	4960-4964	4965-4969	4970-4974	4975-4979	4980-4984	4985-4989	4990-4994	4995-4999	5000-5004	5005-5009	5010-5014	5015-5019	5020-5024	5025-5029	5030-5034	5035-5039	5040-5044	5045-5049	5050-5054	5055-5059	5060-5064	5065-5069	5070-5074	5075-5079	5080-5084	5085-5089	5090-5094	5095-5099	5100-5104	5105-5109	5110-5114	5115-5119	5120-5124	5125-5129	5130-5134	5135-5139	5140-5144	5145-5149	5150-5154	5155-5159	5160-5164	5165-5169	5170-5174	5175-5179	5180-5184	5185-5189	5190-5194	5195-5199	5200-5204	5205-5209	5210-5214	5215-5219	5220-5224	5225-5229	5230-5234	5235-5239	5240-5244	5245-5249	5250-5254	5255-5259	5260-5264	5265-5269	5270-5274	5275-5279	5280-5284	5285-5289	5290-5294	5295-5299	5300-5304	5305-5309	5310-5314	5315-5319	5320-5324	5325-5329	5330-5334	5335-5339	5340-5344	5345-5349	5350-5354	5355-5359	5360-5364	5365-5369	5370-5374	5375-5379	5380-5384	5385-5389	5390-5394	5395-5399	5400-5404	5405-5409	5410-5414	5415-5419	5420-5424	5425-5429	5430-5434	5435-5439	5440-5444	5445-5449	5450-5454	5455-5459	5460-5464	5465-5469	5470-5474	5475-5479	5480-5484	5485-5489	5490-5494	5495-5499	5500-5504	5505-5509	5510-5514	5515-5519	5520-5524	5525-5529	5530-5534	5535-5539	5540-5544	5545-5549	5550-5554	5555-5559	5560-5564	5565-5569	5570-5574	5575-5579	5580-5584	5585-5589	5590-5594	5595-5599	5600-5604	5605-5609	5610-5614	5615-5619	5620-5624	5625-5629	5630-5634	5635-5639	5640-5644	5645-5649	5650-5654	5655-5659	5660-5664	5665-5669	5670-5674	5675-5679	5680-5684	5685-5689	5690-5694	5695-5699	5700-5704	5705-5709	5710-5714	5715-5719	5720-5724	5725-5729	5730-5734	5735-5739	5740-5744	5745-5749	5750-5754	5755-5759	5760-5764	5765-5769	5770-5774	5775-5779	5780-5784	5785-5789	5790-5794	5795-5799	5800-5804	5805-5809	5810-5814	5815-5819	5820-5824	5825-5829	5830-5834	5835-5839	5840-5844	5845-5849	5850-5854	5855-5859	5860-5864	5865-5869	5870-5874	5875-5879	5880-5884	5885-5889	5890-5894	5895-5899	5900-5904	5905-5909	5910-5914	5915-5919	5920-5924	5925-5929	5930-5934	5935-5939	5940-5944	5945-5949	5950-5954	5955-5959	5960-5964	5965-5969	5970-5974	5975-5979	5980-5984	5985-5989	5990-5994	5995-5999	6000-6004	6005-6009	6010-6014	6015-6019	6020-6024	6025-6029	6030-6034	6035-6039	6040-6044	6045-6049	6050-6054	6055-6059	6060-6064	6065-6069	6070-6074	6075-6079	6080-6084	6085-6089	6090-6094	6095-6099	6100-6104	6105-6109	6110-6114	6115-6119	6120-6124	6125-6129	6130-6134	6135-6139	6140-6144	6145-6149	6150-6154	6155-6159	6160-6164	6165-6169	6170-6174	6175-6179	6180-6184	6185-6189	6190-6194	6195-6199	6200-6204	6205-6209	6210-6214	6215-6219	6220-6224	6225-6229	6230-6234	6235-6239	6240-6244	6245-6249	6250-6254	6255-6259	6260-6264	6265-6269	6270-6274	6275-6279	6280-6284	6285-6289	6290-6294	6295-6299	6300-6304	6305-6309	6310-6314	6315-6319	6320-6324	6325-6329	6330-6334	6335-6339	6340-6344	
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ECGENE	INITIALS	Protein/Enzyme	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7
FILE NAME	PROTEIN	ORGANISM	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7
HYDROLYTIC	DIHYDROXYLATE DEHYDROGENASE	SALMONELLA TYPHIMURUM	115-142						
PTPO TACSU	CTP SYNTHASE	BACILLUS SUBTILIS	315-302	315-349					
PPYIT FRED	PHOSPHORYLASE 97 KD LINKER POLYPEPTIDE	FRONTIELLA DIPLOSPHON	31-48						
POUR ECOLI	QUINONE OXIDOREDUCTASE	ESCHERICHIA COLI	185-215						
POUEA ECOLI	QUINONE BIOSYNTHESIS PROTEIN QUA	ESCHERICHIA COLI	315-381						
POUEA ECOLI	11.3 KD PROTEIN IN TUBERCULOSIS OPERON	CLOSTRIDIUM PASTEURIANUM	315-300	135-212					
PRACC ECOLI	ACEC PROTEIN	ESCHERICHIA COLI	5-31						
PRACD STATH	ASPARTATE DECARBAMASE	STREPTOCOCCUS THERMOPHILUS	115-149						
PRACR BACSU	PROBABILE AMINO ACID LACAMASE	BACILLUS SUBTILIS	175-163						
PRAD ECOLI	ALPHA-GALACTOSIDASE	ESCHERICHIA COLI	89-116						
PRAD ECOLI	RAFINOSE INVERTASE	ESCHERICHIA COLI	145-171						
PRAC ECOLI	RIBOSE TRANSPORT SYSTEM COMPONENT	ESCHERICHIA COLI	61-59	195-211					
PRAC ECOLI	RIBONUCLEASE	ESCHERICHIA COLI	105-119						
PRUBT KLEA	RIBITOL (RBT) OPERON REPRESSOR	KLEBSIELLA AERGENES	6-47						
PRAC ECOLI	BIOSYNTHESIS ACTIVATION PROTEIN A	ESCHERICHIA COLI	175-167						
PRAC ECOLI	BIOSYNTHESIS ACTIVATION PROTEIN A	ERWINIA AMYLOVORA	92-119	174-201					
PRAC ECOLI	BIOSYNTHESIS ACTIVATION PROTEIN A	ERWINIA STEWARTII	174-201						
PRAC ECOLI	BIOSYNTHESIS ACTIVATION PROTEIN A	KLEBSIELLA AERGENES	145-203						
PRAC ECOLI	BIOSYNTHESIS ACTIVATION PROTEIN A	ESCHERICHIA COLI	14-41	135-186					
PRAC ECOLI	CAPULE SYNTHESIS B COMPONENT	ESCHERICHIA COLI	245-310						
PRAC ECOLI	RECA PROTEIN	LEGIONELLA PNEUMOPHILA	245-310						
PRAC ECOLI	RECA PROTEIN	ACHOLEPLASMA LAIDLAWII	245-310						
PRAC ECOLI	RECA PROTEIN	AGROBACTERIUM TUMEFACIENS	1-30	112-116	211-204				
PRAC ECOLI	RECA PROTEIN	ANABAEANA VARABILIS	312-348						
PRAC ECOLI	RECA PROTEIN	AQUIFEX PYROPHILUS	61-60	176-153					
PRAC ECOLI	RECA PROTEIN	BACTERIOBET FRAGILIS	108-131						
PRAC ECOLI	RECA PROTEIN	BACILLUS SUBTILIS	153-334						
PRAC ECOLI	RECA PROTEIN	BRUCELLA ABORTUS	1-30	132-137	245-307				
PRAC ECOLI	RECA PROTEIN	BURKHOLDERIA CEPACIA	15-109						
PRAC ECOLI	RECA PROTEIN	ERWINIA CAROTOVORA	184-311						
PRAC ECOLI	RECA PROTEIN	LACTOBACILLUS DELBRUECKII	28-47						
PRAC ECOLI	RECA PROTEIN	LACTOBACILLUS HELVETICUS	28-47						
PRAC ECOLI	RECA PROTEIN	LACTOCOCCUS LACTIS	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	METHYLOBLASTUS FLAVELLATUM	128-203						
PRAC ECOLI	RECA PROTEIN	METHYLOBLASTUS FLAVELLATUM	128-203						
PRAC ECOLI	RECA PROTEIN	MYCOPLASMA PULMONIS	185-317						
PRAC ECOLI	RECA PROTEIN	MYCOBACTERIUM TUBERCULOSIS	145-176						
PRAC ECOLI	RECA PROTEIN	NEISSERIA GONORRHOEAE	245-310						
PRAC ECOLI	RECA PROTEIN	PROTEUS MIRABILIS	245-310						
PRAC ECOLI	RECA PROTEIN	PSEUDOMONAS AERUGINOSA	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	RHIZOBIUM LEGUMINOSARUM	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	RHIZOBIUM LEGUMINOSARUM	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	RHIZOBIUM MELLEOTI	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	RHIZOBIUM MELLEOTI	115-163	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	STREPTOCOCCUS PNEUMONIAE	134-161	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	STREPTOCOCCUS TP	134-161	315-349	215-115				
PRAC ECOLI	RECA PROTEIN	VIBRIO CHOLERAE	295-317						
PRAC ECOLI	RECA PROTEIN	BACILLUS SUBTILIS	4-31	175-163					
PRAC ECOLI	RECA PROTEIN	ESCHERICHIA COLI	81-109	145-174					
PRAC ECOLI	RECA PROTEIN	PROTEUS MIRABILIS	84-111						
PRAC ECOLI	RECA PROTEIN	PSEUDOMONAS PUTIDA	84-111						
PRAC ECOLI	RECA PROTEIN	SALMONELLA TYPHIMURUM	115-174						
PRAC ECOLI	EXONUCLEASE REC1	ESCHERICHIA COLI	53-79						
PRAC ECOLI	RECOMBINATION PROTEIN	BACILLUS SUBTILIS	31-48						
PRAC ECOLI	DNA HELICASE RECQ	ESCHERICHIA COLI	481-495						
PRAC ECOLI	GTP PYROPHOSPHATASE	ESCHERICHIA COLI	481-495						
PRAC ECOLI	REPLICATION AND MAINTENANCE PROTEIN	BACILLUS SUBTILIS	2-34	81-104					
PRAC ECOLI	REPLICATION AND MAINTENANCE PROTEIN	STAPHYLOCOCCUS AUREUS	2-34	81-104					

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PCGENE	10/11/14	Protein name, length, mass	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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TCGNAME	10/31/1944	ProteinMol 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ORGANISM	1	TRYPANOSOMA PALIDUM	18-33																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

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ECGENE	191117164	Protein(s) 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ECGENE	191117164	Protein(s) Synthesized	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

PEPTIDE	1971/1974	Protein(s) Expressed	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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PCGENE	IDENTIFIER	Protein Sequence	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12
FILE NAME	PROTEIN													
PYTDK BACSU	HYPOTHETICAL 35.6 KD PROTEIN	ORGANISM	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	164-171	179-186										
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	LEPTOSPIRA BIFLEXA	94-113											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	LACTOCOCCUS LACTIS	76-113											
PYTDK BACSU	HYPOTHETICAL 30.9 KD PROTEIN	BACILLUS SUBTILIS	17-44											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	SPHOPHAGMA CITRI	103-108											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	17-44											
PYTDK BACSU	HYPOTHETICAL 31.0 KD PROTEIN	BACILLUS SUBTILIS	142-169											
PYTDK BACSU	HYPOTHETICAL 31.0 KD PROTEIN	BACILLUS SUBTILIS	17-31											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	163-167	163-167										
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	17-36											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	16-43	13-112										
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	BACILLUS SUBTILIS	16-43	13-112										
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	ANABAEANA SP	17-184											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	ANABAEANA SP	17-184											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	CALDOCELLUM SACCHAROLYTICUM	9-39											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	CALDOCELLUM SACCHAROLYTICUM	41-44											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	CALDOCELLUM SACCHAROLYTICUM	41-44											
PYTDK BACSU	HYPOTHETICAL 31.1 KD PROTEIN	ESCHERICHIA COLI	41-44											

TABLE IX

107 X 178 X 4 SEARCH MOTIF RESULTS SUMMARY

FOR ALL HUMAN PROTEINS

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ACCESSION	PROTEIN	(1611)1612 Amino Acids on All Human Protein Sequences	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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[illegible]

PC-GENE	INITIAL/Full Name	Search for All Human Protein Sequences	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7
FILE NAME	PROTEIN								
PECA1 HUMAN	ECADHERIN REPAIR PROTEIN ENCC-4		146-209	916-973					
PEIT1 HUMAN	RETINOGEN RECEPTOR (RA)		51-210						
PEIT2 HUMAN	ENDOTHELIN-3 RECEPTOR (ET-3)		132-160						
PEIT3 HUMAN	ENDOTHELIN-3 RECEPTOR (ET-3)		122-204						
PEV1 HUMAN	EVIA PROTEIN RECEPTOR		78-105						
PEV2 HUMAN	EVIA PROTEIN RECEPTOR		119-144	403-419	512-519				
PEV3 HUMAN	EVIA PROTEIN RECEPTOR		2103-2137						
PEV4 HUMAN	COAGULATION FACTOR VII PRECURSOR		871-903	1001-1015	1194-1210				
PEV5 HUMAN	COAGULATION FACTOR VII PRECURSOR (PROCOAGULANT COMPONENT)		212-249						
PEV6 HUMAN	COAGULATION FACTOR VII PRECURSOR (EC 3.4.21.22) (CIRULININ FACTOR)		94-123						
PEV7 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		21-30	249-261	306-313				
PEV8 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		81-113						
PEV9 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		100-174						
PEV10 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		218-237						
PEV11 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		131-163	417-417					
PEV12 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		109-146						
PEV13 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		99-93	121-160					
PEV14 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		99-93	121-160					
PEV15 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		218-219						
PEV16 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		177-209						
PEV17 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		184-218	306-313	307-323				
PEV18 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		183-203						
PEV19 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		131-168						
PEV20 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		109-180						
PEV21 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		5-24						
PEV22 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		2-31						
PEV23 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		164-193						
PEV24 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		106-133						
PEV25 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		134-231						
PEV26 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		146-171						
PEV27 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		16-30						
PEV28 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		181-213						
PEV29 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		354-311						
PEV30 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		216-237						
PEV31 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		311-335						
PEV32 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		75-103						
PEV33 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		22-49						
PEV34 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		32-49						
PEV35 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		7-24						
PEV36 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		85-92						
PEV37 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		116-137						
PEV38 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		434-488						
PEV39 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		32-49						
PEV40 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		306-337	331-339	339-421	647-676			
PEV41 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		183-197						
PEV42 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		187-194						
PEV43 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		187-194						
PEV44 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		400-487						
PEV45 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		81-110						
PEV46 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		201-278						
PEV47 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		189-216	306-316	314-411				
PEV48 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		176-231						
PEV49 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		181-113	331-378					
PEV50 HUMAN	FAATY ACID-BINDING PROTEIN, INTESTINAL		32-49	344-371					

[illegible]

[illegible]

PCGENE	107113rc1.McEl_Seqs as All Human Protein Sequences	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
FILE NAME	PROTEIN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			</																																																																																																																																																																																																																																																																																																																																																																																																					

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TABLE X

**Search Results Summary for PCTLZIP,
P1CTLZIP, and P2CTLZIP Motifs**

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PHEMA MUMPM	133-148								PHEMA GYNOC	321-408	
PHEMA MUMPR	133-148								PHEMA IALC	322-338	
PHEMA MUMPS	133-148								PHEMA IABAN	308-323	
PHEMA PIJHW	348-380								PHEMA IABUD	320-337	
PHEMA PIJH	85-90								PHEMA IACKA	320-337	
PHEMA PIJHT	86-90								PHEMA IACKG	316-333	
PHEMA RINDK	306-383								PHEMA IACKP	302-318	
PHEMA BVVB	7-94								PHEMA IACKQ	302-318	
PHEMA BVVGM	7-94								PHEMA IACKS	318-336	
PHEMA BVVGP	7-94								PHEMA IACKV	316-332	
PHEMA BVVBLN	7-94								PHEMA IADA1	320-337	
PVENV DHV1	42-67								PHEMA IADA3	322-339	
PVFP7 CAPYK	89-104								PHEMA IADCE	320-337	
PVJUS VACC8	72-87								PHEMA IADH1	306-323	
PV001 BPP22	242-287								PHEMA IADH2	306-323	
PV001 H8V8B	109-184								PHEMA IADH3	306-323	
PV001 H8V11	210-228								PHEMA IADH4	306-323	
PV006 BPT4	184-188								PHEMA IADH6	306-323	
PV007 BPT4	886-900								PHEMA IADH7	306-323	
PV008 H8V11	134-149								PHEMA IADN2	322-339	
PV010 BPH2	183-188								PHEMA IADN3	322-339	
PV010 BPP2A	183-188								PHEMA IADN6	306-323	
PV010 H8V8A	108-124								PHEMA IADN7	322-339	
PV016 BPP1	81-99								PHEMA IAE7	322-339	
PV018 BPT4	468-483								PHEMA IAEPR	318-332	
PV028 BPT4	97-112								PHEMA IAGRE	320-337	
PV028 H8V11	20-36								PHEMA IAGU2	320-337	
PV030 BPPH8	11-94								PHEMA IAGUA	318-336	
PV036 BPPX2	22-37								PHEMA IAHAL	321-338	
PV036 H8V8A	108-123								PHEMA IAHG8	318-332	
PV037 BPT2	1263-1268								PHEMA IAHG7	318-332	
PV037 H8V11	204-289								PHEMA IAHDE	318-332	
PV085 H8V11	22-37	143-168							PHEMA IAHFO	321-338	
PV088 H8V11	268-283								PHEMA IAHK6	321-338	
PV088 H8V11	102-117								PHEMA IAHK7	321-338	
PV088 H8V11	267-282								PHEMA IAHLE	318-332	
PV088 H8V11	818-833								PHEMA IAHLO	318-332	
PV088 BPH2	234-248								PHEMA IAHM	321-338	
PV088 BPP2A	234-248								PHEMA IAHNM	318-332	
PV088 BPP1R	57-72								PHEMA IAHN	318-332	
PV088 BPPHX	234-248								PHEMA IAHPR	318-332	
PV012 CVF	264-278								PHEMA IAHRO	321-338	
PV012 CVL9	264-278								PHEMA IAHBA	318-332	
PV012 CVL8	264-278								PHEMA IAHBP	318-332	
PV012 CVBM	264-278								PHEMA IAHBW	318-332	
PV012 CVBQ	264-278								PHEMA IAHTE	321-338	
PV012 CVBV	264-278								PHEMA IAHTR	321-338	

[illegible]

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	PVGL3 CIBV	125-198	174-190	264-278	PVMAT CDVO	148-168
	PVGL3 CVM4	98-111	1287-1289		PVMAT MEARI	87-104
	PVGL3 CYMAS	88-111	1215-1231		PVMP CAMYO	147-164
	PVGL3 CYMAH	88-111	1128-1142		PVMP CAMYO	142-164
	PVGL3 CYPFB	442-487	800-810	1274-1290	PVMP CAMYE	147-164
	PVGL3 CYPFU	440-486	804-818	788-814	PVMP CAMYN	147-164
	PVGL3 CYPRB	218-233	676-692	1060-1066	PVMP CAMYB	147-164
	PVGL3 CYPRM	218-233	678-692	1050-1068	PVMP CAMYH	147-164
	PVGL3 FIPV	803-819	1277-1293		PVMSA KPBVO	11-84
	PVGL3 BVB	1068-1071			PVMSA KPBV2	186-202
	PVGL3 BVB	1068-1070			PVMSA KPBVA	186-202
	PVGL3 BVQ2	1068-1071			PVMSA KPBVA	174-191
	PVGL3 BVK	1068-1070			PVMSA KPBVD	11-84
	PVGL3 BVH	1068-1070			PVMSA KPBVJ	174-191
	PVGL3 HBVA	701-716			PVMSA KPBVL	174-191
	PVGL3 PRVF	203-218			PVMSA KPSVN	11-84
	PVGL3 VZVO	622-638			PVMSA KPBVO	174-191
	PVGLC HBVC	476-480			PVMSA KPBVP	185-202
	PVGLC HVE4	444-468			PVMSA KPBVR	185-202
	PVGLC HVEB	427-442			PVMSA KPBVB	11-84
	PVGLC PRVF	448-461			PVMSA KPBVV	174-191
	PVGLC VZVO	160-168			PVMSA KPBV2	174-191
	PVGLC VZVB	160-168			PVMT2 LAANN	28-42
	PVGLD HBV11	78-84			PVMT2 LABAN	28-42
	PVGLD HBV2	78-84			PVMT2 IAFOW	28-42
	PVGLS PRVI	3-84			PVMT2 IAFPR	28-42
	PVGLS BRVA	206-221	266-280		PVMT2 IAFPW	28-42
	PVGLS BRVC	206-221	266-280		PVMT2 IALE1	28-42
	PVGLS BRVR	206-221	266-280		PVMT2 IALE2	28-42
	PVGLS CDVO	398-414			PVMT2 IAMAN	28-42
	PVGLS HRV11	206-221	266-280		PVMT2 IAPUS	28-42
	PVGLS HRVA	206-221	266-280		PVMT2 IABIN	28-42
	PVGLS HRV1L	206-221	266-280		PVMT2 IAUDO	28-42
	PVGLS HRVR	206-221	266-280		PVMT2 IAWIL	28-42
	PVGLS MEABE	266-302				
	PVGLS MEABI	288-306				
	PVGLS MEADY	266-302				
	PVGLS MUMPH	276-282				
	PVGLS MUMPR	276-282				
	PVGLS HUMPB	6-84	276-282			
	PVGLS HDVA	275-289				
	PVGLS HDVB	275-289				
	PVGLS NDVM	275-289				
	PVGLS NDTT	275-288				
	PVGLS NDVTG	275-289				
	PVGLP HDVV	275-289				
	PVGLP PHODU	269-286	387-389			

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[illegible]

TABLE XI

Search Results Summary for P3CTLZIP, P4CTLZIP,
P5CTLZIP, and P6CTLZIP Motifs

[illegible]

PVMO1 VACCV	183-101	126-144	PVQ12 CVM4	889-1016		PVENY THOQV	356-276		PHEMA P12H	13-34	
PVMI REOVL	227-248		PVQ12 CVM4B	847-888		PVQ01 VACCC	286-318		PHEMA P12H	13-34	
PVMI REOVL	227-248		PVQ12 CVM4H	888-877		PVQ01 VACCV	227-287		PHEMA QV8	7-28	378-400
PVMA1 H8V8A	44-82		PVQ12 CVFF8	84-83	1030-1067	PVQ01 VARV	286-318		PHEMA QV8CM	7-28	378-400
PVMA1 NDVA	190-208		PVQ12 CVPPU	81-83	1030-1066	PVQ08 VACCC	31-81		PHEMA QV8CP	7-28	378-400
PVMA1 NDVA	190-208		PVQ12 CVPP8	814-833		PVQ08 VARV	31-81		PHEMA QV8LN	7-28	378-400
PVMA1 CAMVC	193-201		PVQ12 CVPRM	814-833		PVQ08 BPPF1	26-46		PHEMA QV8LN	7-28	378-400
PVMA1 CAMVD	193-201		PVQ12 R1PV	1041-1080		PVQ12 H8V11	181-171		PVQ01 H8V11	180-180	
PVMA1 CAMVE	193-201		PVQ12 R1V8	588-607	771-780	PVQ12 H8V11	300-370		PVQ12 H8V11	180-180	
PVMA1 CAMVN	193-201		PVQ12 R1V8	687-808	770-788	PVQ12 H8V11	640-688		PVQ12 H8V11	180-180	
PVMA1 CAMVS	193-201		PVQ12 R1V8	688-607	771-780	PVQ12 H8V11	28-48		PVQ12 H8V11	167-178	
PVMA1 CAMVW	193-201		PVQ12 R1V8	687-808	770-788	PVQ12 H8V11	318-358		PVQ12 H8V11	288-309	
PVMA1 CAMVD	180-188		PVQ12 R1V8	687-808	770-788	PVQ12 H8V11	117-137		PVQ12 H8V11	85-100	
			PVQ12 R1V8	708-726		PVQ12 H8V11	124-144		PVQ12 H8V11	1165-1178	
			PVQ12 R1V8	707-728		PVQ12 H8V11	328-348		PVQ12 H8V11	288-287	
			PVQ12 R1V8	117-136		PVQ12 H8V11	327-347		PVQ12 H8V11	30-51	
			PVQ12 R1V8	268-278		PVQ12 H8V11	328-348		PVQ12 H8V11	228-288	
			PVQ12 R1V8	268-285		PVQ12 H8V11	328-348		PVQ12 H8V11	1868-1877	
			PVQ12 R1V8	268-285		PVQ12 H8V11	327-347		PVQ12 H8V11	167-178	
			PVQ12 R1V8	3-84	487-488	PVQ12 H8V11	327-347	378-388	PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	3-84	487-488	PVQ12 H8V11	310-330		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	478-484		PVQ12 H8V11	732-762		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	438-456		PVQ12 H8V11	760-770		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	372-391		PVQ12 H8V11	761-771		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	44-83		PVQ12 H8V11	70-80		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	278-287		PVQ12 H8V11	70-80		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	117-136		PVQ12 H8V11	85-85		PVQ12 H8V11	1268-1280	
			PVQ12 R1V8	152-171		PVQ12 H8V11	72-82		PVQ12 H8V11	1176-1187	
			PVQ12 R1V8	687-1018		PVQ12 H8V11	278-288		PVQ12 H8V11	82-104	
			PVQ12 R1V8	158-174		PVQ12 H8V11	82-83		PVQ12 H8V11	82-103	
			PVQ12 R1V8	158-174		PVQ12 H8V11	288-303		PVQ12 H8V11	82-103	
			PVQ12 R1V8	830-849		PVQ12 H8V11	454-474		PVQ12 H8V11	138-160	
			PVQ12 R1V8	830-849		PVQ12 H8V11	454-474		PVQ12 H8V11	448-467	
			PVQ12 R1V8	855-874		PVQ12 H8V11	454-474		PVQ12 H8V11	338-357	
			PVQ12 R1V8	88-108		PVQ12 H8V11	454-474		PVQ12 H8V11	224-246	
			PVQ12 R1V8	1185-1104		PVQ12 H8V11	454-474		PVQ12 H8V11	224-246	
			PVQ12 R1V8	521-540		PVQ12 H8V11	670-680		PVQ12 H8V11	448-467	
			PVQ12 R1V8	171-180		PVQ12 H8V11	1326-1346		PVQ12 H8V11	448-467	
			PVQ12 R1V8	136-156		PVQ12 H8V11	1326-1346		PVQ12 H8V11	448-467	
			PVQ12 R1V8	174-183		PVQ12 H8V11	988-1018		PVQ12 H8V11	448-467	
			PVQ12 R1V8	174-183		PVQ12 H8V11	988-1018		PVQ12 H8V11	448-467	
			PVQ12 R1V8	174-183		PVQ12 H8V11	988-1018		PVQ12 H8V11	448-467	
			PVQ12 R1V8	171-100		PVQ12 H8V11	1000-1020		PVQ12 H8V11	448-467	
			PVQ12 R1V8			PVQ12 H8V11	1001-1021		PVQ12 H8V11	448-467	
			PVQ12 R1V8			PVQ12 H8V11	1001-1021		PVQ12 H8V11	448-467	
			PVQ12 R1V8			PVQ12 H8V11	1168-1178		PVQ12 H8V11	448-467	
			PVQ12 R1V8			PVQ12 H8V11	1000-1020		PVQ12 H8V11	448-467	

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	PVMDA HPDVZ	33-384
	PVMT2 IAANH	28-46
	PVMT2 IABAH	28-46
	PVMT2 IAFOW	28-46
	PVMT2 IAPPR	28-46
	PVMT2 IAPFW	28-46
	PVMT2 IALE1	28-46
	PVMT2 IALE2	28-46
	PVMT2 IAMAN	28-46
	PVMT2 IAPUE	28-46
	PVMT2 IABIN	28-46
	PVMT2 IAUDO	28-46
	PVMT2 IAWIL	28-46

TABLE XII

**Search Results Summary for P7CTLZIP,
P8CTLZIP, and P9CTLZIP Motifs**

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TABLE XIII

SEARCH RESULTS SUMMARY FOR P12LZIPC MOTIF

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Accession	Protein	Gene	Function	Source	Size (aa)	Weight (kDa)	PI	Ref
U00096	COAT PROTEIN	COAT	COAT PROTEIN	COAT PROTEIN	100	10.0	5.5	1
U00097	COAT PROTEIN VP1	COAT	COAT PROTEIN VP1	COAT PROTEIN VP1	100	10.0	5.5	1
U00098	COAT PROTEIN VP2	COAT	COAT PROTEIN VP2	COAT PROTEIN VP2	100	10.0	5.5	1
U00099	COAT PROTEIN VP3	COAT	COAT PROTEIN VP3	COAT PROTEIN VP3	100	10.0	5.5	1
U00100	COAT PROTEIN VP4	COAT	COAT PROTEIN VP4	COAT PROTEIN VP4	100	10.0	5.5	1
U00101	COAT PROTEIN VP5	COAT	COAT PROTEIN VP5	COAT PROTEIN VP5	100	10.0	5.5	1
U00102	COAT PROTEIN VP6	COAT	COAT PROTEIN VP6	COAT PROTEIN VP6	100	10.0	5.5	1
U00103	COAT PROTEIN VP7	COAT	COAT PROTEIN VP7	COAT PROTEIN VP7	100	10.0	5.5	1
U00104	COAT PROTEIN VP8	COAT	COAT PROTEIN VP8	COAT PROTEIN VP8	100	10.0	5.5	1
U00105	COAT PROTEIN VP9	COAT	COAT PROTEIN VP9	COAT PROTEIN VP9	100	10.0	5.5	1
U00106	COAT PROTEIN VP10	COAT	COAT PROTEIN VP10	COAT PROTEIN VP10	100	10.0	5.5	1
U00107	COAT PROTEIN VP11	COAT	COAT PROTEIN VP11	COAT PROTEIN VP11	100	10.0	5.5	1
U00108	COAT PROTEIN VP12	COAT	COAT PROTEIN VP12	COAT PROTEIN VP12	100	10.0	5.5	1
U00109	COAT PROTEIN VP13	COAT	COAT PROTEIN VP13	COAT PROTEIN VP13	100	10.0	5.5	1
U00110	COAT PROTEIN VP14	COAT	COAT PROTEIN VP14	COAT PROTEIN VP14	100	10.0	5.5	1
U00111	COAT PROTEIN VP15	COAT	COAT PROTEIN VP15	COAT PROTEIN VP15	100	10.0	5.5	1
U00112	COAT PROTEIN VP16	COAT	COAT PROTEIN VP16	COAT PROTEIN VP16	100	10.0	5.5	1
U00113	COAT PROTEIN VP17	COAT	COAT PROTEIN VP17	COAT PROTEIN VP17	100	10.0	5.5	1
U00114	COAT PROTEIN VP18	COAT	COAT PROTEIN VP18	COAT PROTEIN VP18	100	10.0	5.5	1
U00115	COAT PROTEIN VP19	COAT	COAT PROTEIN VP19	COAT PROTEIN VP19	100	10.0	5.5	1
U00116	COAT PROTEIN VP20	COAT	COAT PROTEIN VP20	COAT PROTEIN VP20	100	10.0	5.5	1
U00117	COAT PROTEIN VP21	COAT	COAT PROTEIN VP21	COAT PROTEIN VP21	100	10.0	5.5	1
U00118	COAT PROTEIN VP22	COAT	COAT PROTEIN VP22	COAT PROTEIN VP22	100	10.0	5.5	1
U00119	COAT PROTEIN VP23	COAT	COAT PROTEIN VP23	COAT PROTEIN VP23	100	10.0	5.5	1
U00120	COAT PROTEIN VP24	COAT	COAT PROTEIN VP24	COAT PROTEIN VP24	100	10.0	5.5	1
U00121	COAT PROTEIN VP25	COAT	COAT PROTEIN VP25	COAT PROTEIN VP25	100	10.0	5.5	1
U00122	COAT PROTEIN VP26	COAT	COAT PROTEIN VP26	COAT PROTEIN VP26	100	10.0	5.5	1
U00123	COAT PROTEIN VP27	COAT	COAT PROTEIN VP27	COAT PROTEIN VP27	100	10.0	5.5	1
U00124	COAT PROTEIN VP28	COAT	COAT PROTEIN VP28	COAT PROTEIN VP28	100	10.0	5.5	1
U00125	COAT PROTEIN VP29	COAT	COAT PROTEIN VP29	COAT PROTEIN VP29	100	10.0	5.5	1
U00126	COAT PROTEIN VP30	COAT	COAT PROTEIN VP30	COAT PROTEIN VP30	100	10.0	5.5	1
U00127	COAT PROTEIN VP31	COAT	COAT PROTEIN VP31	COAT PROTEIN VP31	100	10.0	5.5	1
U00128	COAT PROTEIN VP32	COAT	COAT PROTEIN VP32	COAT PROTEIN VP32	100	10.0	5.5	1
U00129	COAT PROTEIN VP33	COAT	COAT PROTEIN VP33	COAT PROTEIN VP33	100	10.0	5.5	1
U00130	COAT PROTEIN VP34	COAT	COAT PROTEIN VP34	COAT PROTEIN VP34	100	10.0	5.5	1
U00131	COAT PROTEIN VP35	COAT	COAT PROTEIN VP35	COAT PROTEIN VP35	100	10.0	5.5	1
U00132	COAT PROTEIN VP36	COAT	COAT PROTEIN VP36	COAT PROTEIN VP36	100	10.0	5.5	1
U00133	COAT PROTEIN VP37	COAT	COAT PROTEIN VP37	COAT PROTEIN VP37	100	10.0	5.5	1
U00134	COAT PROTEIN VP38	COAT	COAT PROTEIN VP38	COAT PROTEIN VP38	100	10.0	5.5	1
U00135	COAT PROTEIN VP39	COAT	COAT PROTEIN VP39	COAT PROTEIN VP39	100	10.0	5.5	1
U00136	COAT PROTEIN VP40	COAT	COAT PROTEIN VP40	COAT PROTEIN VP40	100	10.0	5.5	1
U00137	COAT PROTEIN VP41	COAT	COAT PROTEIN VP41	COAT PROTEIN VP41	100	10.0	5.5	1
U00138	COAT PROTEIN VP42	COAT	COAT PROTEIN VP42	COAT PROTEIN VP42	100	10.0	5.5	1
U00139	COAT PROTEIN VP43	COAT	COAT PROTEIN VP43	COAT PROTEIN VP43	100	10.0	5.5	1
U00140	COAT PROTEIN VP44	COAT	COAT PROTEIN VP44	COAT PROTEIN VP44	100	10.0	5.5	1
U00141	COAT PROTEIN VP45	COAT	COAT PROTEIN VP45	COAT PROTEIN VP45	100	10.0	5.5	1
U00142	COAT PROTEIN VP46	COAT	COAT PROTEIN VP46	COAT PROTEIN VP46	100	10.0	5.5	1
U00143	COAT PROTEIN VP47	COAT	COAT PROTEIN VP47	COAT PROTEIN VP47	100	10.0	5.5	1
U00144	COAT PROTEIN VP48	COAT	COAT PROTEIN VP48	COAT PROTEIN VP48	100	10.0	5.5	1
U00145	COAT PROTEIN VP49	COAT	COAT PROTEIN VP49	COAT PROTEIN VP49	100	10.0	5.5	1
U00146	COAT PROTEIN VP50	COAT	COAT PROTEIN VP50	COAT PROTEIN VP50	100	10.0	5.5	1
U00147	COAT PROTEIN VP51	COAT	COAT PROTEIN VP51	COAT PROTEIN VP51	100	10.0	5.5	1
U00148	COAT PROTEIN VP52	COAT	COAT PROTEIN VP52	COAT PROTEIN VP52	100	10.0	5.5	1
U00149	COAT PROTEIN VP53	COAT	COAT PROTEIN VP53	COAT PROTEIN VP53	100	10.0	5.5	1
U00150	COAT PROTEIN VP54	COAT	COAT PROTEIN VP54	COAT PROTEIN VP54	100	10.0	5.5	1
U00151	COAT PROTEIN VP55	COAT	COAT PROTEIN VP55	COAT PROTEIN VP55	100	10.0	5.5	1
U00152	COAT PROTEIN VP56	COAT	COAT PROTEIN VP56	COAT PROTEIN VP56	100	10.0	5.5	1
U00153	COAT PROTEIN VP57	COAT	COAT PROTEIN VP57	COAT PROTEIN VP57	100	10.0	5.5	1
U00154	COAT PROTEIN VP58	COAT	COAT PROTEIN VP58	COAT PROTEIN VP58	100	10.0	5.5	1
U00155	COAT PROTEIN VP59	COAT	COAT PROTEIN VP59	COAT PROTEIN VP59	100	10.0	5.5	1
U00156	COAT PROTEIN VP60	COAT	COAT PROTEIN VP60	COAT PROTEIN VP60	100	10.0	5.5	1
U00157	COAT PROTEIN VP61	COAT	COAT PROTEIN VP61	COAT PROTEIN VP61	100	10.0	5.5	1
U00158	COAT PROTEIN VP62	COAT	COAT PROTEIN VP62	COAT PROTEIN VP62	100	10.0	5.5	1
U00159	COAT PROTEIN VP63	COAT	COAT PROTEIN VP63	COAT PROTEIN VP63	100	10.0	5.5	1
U00160	COAT PROTEIN VP64	COAT	COAT PROTEIN VP64	COAT PROTEIN VP64	100	10.0	5.5	1
U00161	COAT PROTEIN VP65	COAT	COAT PROTEIN VP65	COAT PROTEIN VP65	100	10.0	5.5	1
U00162	COAT PROTEIN VP66	COAT	COAT PROTEIN VP66	COAT PROTEIN VP66	100	10.0	5.5	1
U00163	COAT PROTEIN VP67	COAT	COAT PROTEIN VP67	COAT PROTEIN VP67	100	10.0	5.5	1
U00164	COAT PROTEIN VP68	COAT	COAT PROTEIN VP68	COAT PROTEIN VP68	100	10.0	5.5	1
U00165	COAT PROTEIN VP69	COAT	COAT PROTEIN VP69	COAT PROTEIN VP69	100	10.0	5.5	1
U00166	COAT PROTEIN VP70	COAT	COAT PROTEIN VP70	COAT PROTEIN VP70	100	10.0	5.5	1
U00167	COAT PROTEIN VP71	COAT	COAT PROTEIN VP71	COAT PROTEIN VP71	100	10.0	5.5	1
U00168	COAT PROTEIN VP72	COAT	COAT PROTEIN VP72	COAT PROTEIN VP72	100	10.0	5.5	1
U00169	COAT PROTEIN VP73	COAT	COAT PROTEIN VP73	COAT PROTEIN VP73	100	10.0	5.5	1
U00170	COAT PROTEIN VP74	COAT	COAT PROTEIN VP74	COAT PROTEIN VP74	100	10.0	5.5	1
U00171	COAT PROTEIN VP75	COAT	COAT PROTEIN VP75	COAT PROTEIN VP75	100	10.0	5.5	1
U00172	COAT PROTEIN VP76	COAT	COAT PROTEIN VP76	COAT PROTEIN VP76	100	10.0	5.5	1
U00173	COAT PROTEIN VP77	COAT	COAT PROTEIN VP77	COAT PROTEIN VP77	100	10.0	5.5	1
U00174	COAT PROTEIN VP78	COAT	COAT PROTEIN VP78	COAT PROTEIN VP78	100	10.0	5.5	1
U00175	COAT PROTEIN VP79	COAT	COAT PROTEIN VP79	COAT PROTEIN VP79	100	10.0	5.5	1
U00176	COAT PROTEIN VP80	COAT	COAT PROTEIN VP80	COAT PROTEIN VP80	100	10.0	5.5	1
U00177	COAT PROTEIN VP81	COAT	COAT PROTEIN VP81	COAT PROTEIN VP81	100	10.0	5.5	1
U00178	COAT PROTEIN VP82	COAT	COAT PROTEIN VP82	COAT PROTEIN VP82	100	10.0	5.5	1
U00179	COAT PROTEIN VP83	COAT	COAT PROTEIN VP83	COAT PROTEIN VP83	100	10.0	5.5	1
U00180	COAT PROTEIN VP84	COAT	COAT PROTEIN VP84	COAT PROTEIN VP84	100	10.0	5.5	1
U00181	COAT PROTEIN VP85	COAT	COAT PROTEIN VP85	COAT PROTEIN VP85	100	10.0	5.5	1
U00182	COAT PROTEIN VP86	COAT	COAT PROTEIN VP86	COAT PROTEIN VP86	100	10.0	5.5	1
U00183	COAT PROTEIN VP87	COAT	COAT PROTEIN VP87	COAT PROTEIN VP87	100	10.0	5.5	1
U00184	COAT PROTEIN VP88	COAT	COAT PROTEIN VP88	COAT PROTEIN VP88	100	10.0	5.5	1
U00185	COAT PROTEIN VP89	COAT	COAT PROTEIN VP89	COAT PROTEIN VP89	100	10.0	5.5	1
U00186	COAT PROTEIN VP90	COAT	COAT PROTEIN VP90	COAT PROTEIN VP90	100	10.0	5.5	1
U00187	COAT PROTEIN VP91	COAT	COAT PROTEIN VP91	COAT PROTEIN VP91	100	10.0	5.5	1
U00188	COAT PROTEIN VP92	COAT	COAT PROTEIN VP92	COAT PROTEIN VP92	100	10.0	5.5	1
U00189	COAT PROTEIN VP93	COAT	COAT PROTEIN VP93	COAT PROTEIN VP93	100	10.0	5.5	1
U00190	COAT PROTEIN VP94	COAT	COAT PROTEIN VP94	COAT PROTEIN VP94	100	10.0	5.5	1
U00191	COAT PROTEIN VP95	COAT	COAT PROTEIN VP95	COAT PROTEIN VP95	100	10.0	5.5	1
U00192	COAT PROTEIN VP96	COAT	COAT PROTEIN VP96	COAT PROTEIN VP96	100	10.0	5.5	1
U00193	COAT PROTEIN VP97	COAT	COAT PROTEIN VP97	COAT PROTEIN VP97	100	10.0	5.5	1
U00194	COAT PROTEIN VP98	COAT	COAT PROTEIN VP98	COAT PROTEIN VP98	100	10.0	5.5	1
U00195	COAT PROTEIN VP99	COAT	COAT PROTEIN VP99	COAT PROTEIN VP99	100	10.0	5.5	1
U00196	COAT PROTEIN VP100	COAT	COAT PROTEIN VP100	COAT PROTEIN VP100	100	10.0	5.5	1
U00197	COAT PROTEIN VP101	COAT	COAT PROTEIN VP101	COAT PROTEIN VP101	100	10.0	5.5	1
U00198	COAT PROTEIN VP102	COAT	COAT PROTEIN VP102	COAT PROTEIN VP102	100	10.0	5.5	1
U00199	COAT PROTEIN VP103	COAT	COAT PROTEIN VP103	COAT PROTEIN VP103	100	10.0	5.5	1
U00200	COAT PROTEIN VP104	COAT	COAT PROTEIN VP104	COAT PROTEIN VP104	100	10.0	5.5	1
U00201	COAT PROTEIN VP105	COAT	COAT PROTEIN VP105	COAT PROTEIN VP105	100	10.0	5.5	1
U00202	COAT PROTEIN VP106	COAT	COAT PROTEIN VP106	COAT PROTEIN VP106	100	10.0	5.5	1
U00203	COAT PROTEIN VP107	COAT	COAT PROTEIN VP107	COAT PROTEIN VP107	100	10.0	5.5	1
U00204	COAT PROTEIN VP108	COAT	COAT PROTEIN VP108	COAT PROTEIN VP108	100	10.0	5.5	1
U00205	COAT PROTEIN VP109	COAT	COAT PROTEIN VP109	COAT PROTEIN VP109	100	10.0	5.5	1
U00206	COAT PROTEIN VP110	COAT	COAT PROTEIN VP110	COAT PROTEIN VP110	100	10.0	5.5	1
U00207	COAT PROTEIN VP111	COAT	COAT PROTEIN VP111	COAT PROTEIN VP111	100	10.0	5.5	1
U00208	COAT PROTEIN VP112	COAT	COAT PROTEIN VP112	COAT PROTEIN VP112	100	10.0	5.5	1
U00209	COAT PROTEIN VP113	COAT	COAT PROTEIN VP113	COAT PROTEIN VP113	100	10.0	5.5	1
U00210	COAT PROTEIN VP114	COAT	COAT PROTEIN VP114	COAT PROTEIN VP114	100	10.0	5.5	1
U00211	COAT PROTEIN VP115	COAT	COAT PROTEIN VP115	COAT PROTEIN VP115	100	10.0	5.5	1
U00212	COAT PROTEIN VP116	COAT	COAT PROTEIN VP116	COAT PROTEIN VP116	100	10.0	5.5	1
U00213	COAT PROTEIN VP117	COAT	COAT PROTEIN VP117	COAT PROTEIN VP117	100	10.0	5.5	1
U00214	COAT PROTEIN VP118	COAT	COAT PROTEIN VP118	COAT PROTEIN VP118	100	10.0	5.5	1
U00215	COAT PROTEIN VP119	COAT	COAT PROTEIN VP119	COAT PROTEIN VP119	100	10.0	5.5	1
U00216	COAT PROTEIN VP120	COAT	COAT PROTEIN VP120	COAT PROTEIN VP120	100	10.0	5.5	1
U00217	COAT PROTEIN VP121	COAT	COAT PROTEIN VP121	COAT PROTEIN VP121	100	10.0	5.5	1
U00218	COAT PROTEIN VP122	COAT	COAT PROTEIN VP122	COAT PROTEIN VP122	100	10.0	5.5	1
U00219	COAT PROTEIN VP123	COAT	COAT PROTEIN VP123	COAT PROTEIN VP123	100	10.0	5.5	1
U00220	COAT PROTEIN VP124	COAT	COAT PROTEIN VP124	COAT PROTEIN VP124	100	10.0	5.5	1
U00221	COAT PROTEIN VP125	COAT	COAT PROTEIN VP125	COAT PROTEIN VP125	100	10.0	5.5	1
U00222	COAT PROTEIN VP126	COAT	COAT PROTEIN VP126	COAT PROTEIN VP126	100	10.0	5.5	1
U00223	COAT PROTEIN VP127	COAT	COAT PROTEIN VP127	COAT PROTEIN VP127	100	10.0	5.5	1
U00224	COAT PROTEIN VP128	COAT	COAT PROTEIN VP128	COAT PROTEIN VP128	100	10.0	5.5	1
U00225	COAT PROTEIN VP129	COAT	COAT PROTEIN VP129	COAT PROTEIN VP129	100	10.0	5.5	1
U00226	COAT PROTEIN VP130	COAT	COAT PROTEIN VP130	COAT PROTEIN VP130	100	10.0	5.5	1
U00227	COAT PROTEIN VP131	COAT	COAT PROTEIN VP131	COAT PROTEIN VP131	100	10.0	5.5	1
U00228	COAT PROTEIN VP132	COAT	COAT PROTEIN VP132	COAT PROTEIN VP132	100	10.0	5.5	1
U00229	COAT PRO							

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FIGURE	PICTURE	ALL VIRUSES (No Bacteriophage yet)	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 454	AREA 455	AREA 456	AREA 457	AREA 458	AREA 459	AREA 460	AREA 461	AREA 462	AREA 463	AREA 464	AREA 465	AREA 466	AREA 467	AREA 468	AREA 469	AREA 470	AREA 471	AREA 472	AREA 473	AREA 474	AREA 475	AREA 476	AREA 477	AREA 478	AREA 479	AREA 480	AREA 481	AREA 482	AREA 483	AREA 484	AREA 485	AREA 486	AREA 487	AREA 488	AREA 489	AREA 490	AREA 491	AREA 492	AREA 493	AREA 494	AREA 495	AREA 496	AREA 497	AREA 498	AREA 499	AREA 500	AREA 501	AREA 502	AREA 503	AREA 504	AREA 505	AREA 506	AREA 507	AREA 508	AREA 509	AREA 510	AREA 511	AREA 512	AREA 513	AREA 514	AREA 515	AREA 516	AREA 517	AREA 518	AREA 519	AREA 520	AREA 521	AREA 522	AREA 523	AREA 524	AREA 525	AREA 526	AREA 527	AREA 528	AREA 529	AREA 530	AREA 531	AREA 532	AREA 533	AREA 534	AREA 535	AREA 536	AREA 537	AREA 538	AREA 539	AREA 540	AREA 541	AREA 542	AREA 543	AREA 544	AREA 545	AREA 546	AREA 547	AREA 548	AREA 549	AREA 550	AREA 551	AREA 552	AREA 553	AREA 554	AREA 555	AREA 556	AREA 557	AREA 558	AREA 559	AREA 560	AREA 561	AREA 562	AREA 563	AREA 564	AREA 565	AREA 566	AREA 567	AREA 568	AREA 569	AREA 570	AREA 571	AREA 572	AREA 573	AREA 574	AREA 575	AREA 576	AREA 577	AREA 578	AREA 579	AREA 580	AREA 581	AREA 582	AREA 583	AREA 584	AREA 585	AREA 586	AREA 587	AREA 588	AREA 589	AREA 590	AREA 591	AREA 592	AREA 593	AREA 594	AREA 595	AREA 596	AREA 597	AREA 598	AREA 599	AREA 600	AREA 601	AREA 602	AREA 603	AREA 604	AREA 605	AREA 606	AREA 607	AREA 608	AREA 609	AREA 610	AREA 611	AREA 612	AREA 613	AREA 614	AREA 615	AREA 616	AREA 617	AREA 618	AREA 619	AREA 620	AREA 621	AREA 622	AREA 623	AREA 624	AREA 625	AREA 626	AREA 627	AREA 628	AREA 629	AREA 630	AREA 631	AREA 632	AREA 633	AREA 634	AREA 635	AREA 636	AREA 637	AREA 638	AREA 639	AREA 640	AREA 641	AREA 642	AREA 643	AREA 644	AREA 645	AREA 646	AREA 647	AREA 648	AREA 649	AREA 650	AREA 651	AREA 652	AREA 653	AREA 654	AREA 655	AREA 656	AREA 657	AREA 658	AREA 659	AREA 660	AREA 661	AREA 662	AREA 663	AREA 664	AREA 665	AREA 666	AREA 667	AREA 668	AREA 669	AREA 670	AREA 671	AREA 672	AREA 673	AREA 674	AREA 675	AREA 676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
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282

GENE		FUNCTION	ALL Viruses (No. Bacteriophages)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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PROTEIN		All Verses (No. Bacteriophage type)		AREA 1		AREA 2		AREA 3		AREA 4		AREA 5		AREA 6		AREA 7		AREA 8		AREA 9		AREA 10		AREA 11		AREA 12		AREA 13		AREA 14		AREA 15		AREA 16		AREA 17		AREA 18		AREA 19		AREA 20		AREA 21		AREA 22		AREA 23		AREA 24		AREA 25		AREA 26		AREA 27		AREA 28		AREA 29		AREA 30		AREA 31		AREA 32		AREA 33		AREA 34		AREA 35		AREA 36		AREA 37		AREA 38		AREA 39		AREA 40		AREA 41		AREA 42		AREA 43		AREA 44		AREA 45		AREA 46		AREA 47		AREA 48		AREA 49		AREA 50		AREA 51		AREA 52		AREA 53		AREA 54		AREA 55		AREA 56		AREA 57		AREA 58		AREA 59		AREA 60		AREA 61		AREA 62		AREA 63		AREA 64		AREA 65		AREA 66		AREA 67		AREA 68		AREA 69		AREA 70		AREA 71		AREA 72		AREA 73		AREA 74		AREA 75		AREA 76		AREA 77		AREA 78		AREA 79		AREA 80		AREA 81		AREA 82		AREA 83		AREA 84		AREA 85		AREA 86		AREA 87		AREA 88		AREA 89		AREA 90		AREA 91		AREA 92		AREA 93		AREA 94		AREA 95		AREA 96		AREA 97		AREA 98		AREA 99		AREA 100		AREA 101		AREA 102		AREA 103		AREA 104		AREA 105		AREA 106		AREA 107		AREA 108		AREA 109		AREA 110		AREA 111		AREA 112		AREA 113		AREA 114		AREA 115		AREA 116		AREA 117		AREA 118		AREA 119		AREA 120		AREA 121		AREA 122		AREA 123		AREA 124		AREA 125		AREA 126		AREA 127		AREA 128		AREA 129		AREA 130		AREA 131		AREA 132		AREA 133		AREA 134		AREA 135		AREA 136		AREA 137		AREA 138		AREA 139		AREA 140		AREA 141		AREA 142		AREA 143		AREA 144		AREA 145		AREA 146		AREA 147		AREA 148		AREA 149		AREA 150		AREA 151		AREA 152		AREA 153		AREA 154		AREA 155		AREA 156		AREA 157		AREA 158		AREA 159		AREA 160		AREA 161		AREA 162		AREA 163		AREA 164		AREA 165		AREA 166		AREA 167		AREA 168		AREA 169		AREA 170		AREA 171		AREA 172		AREA 173		AREA 174		AREA 175		AREA 176		AREA 177		AREA 178		AREA 179		AREA 180		AREA 181		AREA 182		AREA 183		AREA 184		AREA 185		AREA 186		AREA 187		AREA 188		AREA 189		AREA 190		AREA 191		AREA 192		AREA 193		AREA 194		AREA 195		AREA 196		AREA 197		AREA 198		AREA 199		AREA 200		AREA 201		AREA 202		AREA 203		AREA 204		AREA 205		AREA 206		AREA 207		AREA 208		AREA 209		AREA 210		AREA 211		AREA 212		AREA 213		AREA 214		AREA 215		AREA 216		AREA 217		AREA 218		AREA 219		AREA 220		AREA 221		AREA 222		AREA 223		AREA 224		AREA 225		AREA 226		AREA 227		AREA 228		AREA 229		AREA 230		AREA 231		AREA 232		AREA 233		AREA 234		AREA 235		AREA 236		AREA 237		AREA 238		AREA 239		AREA 240		AREA 241		AREA 242		AREA 243		AREA 244		AREA 245		AREA 246		AREA 247		AREA 248		AREA 249		AREA 250		AREA 251		AREA 252		AREA 253		AREA 254		AREA 255		AREA 256		AREA 257		AREA 258		AREA 259		AREA 260		AREA 261		AREA 262		AREA 263		AREA 264		AREA 265		AREA 266		AREA 267		AREA 268		AREA 269		AREA 270		AREA 271		AREA 272		AREA 273		AREA 274		AREA 275		AREA 276		AREA 277		AREA 278		AREA 279		AREA 280		AREA 281		AREA 282		AREA 283		AREA 284		AREA 285		AREA 286		AREA 287		AREA 288		AREA 289		AREA 290		AREA 291		AREA 292		AREA 293		AREA 294		AREA 295		AREA 296		AREA 297		AREA 298		AREA 299		AREA 300		AREA 301		AREA 302		AREA 303		AREA 304		AREA 305		AREA 306		AREA 307		AREA 308		AREA 309		AREA 310		AREA 311		AREA 312		AREA 313		AREA 314		AREA 315		AREA 316		AREA 317		AREA 318		AREA 319		AREA 320		AREA 321		AREA 322		AREA 323		AREA 324		AREA 325		AREA 326		AREA 327		AREA 328		AREA 329		AREA 330		AREA 331		AREA 332		AREA 333		AREA 334		AREA 335		AREA 336		AREA 337		AREA 338		AREA 339		AREA 340		AREA 341		AREA 342		AREA 343		AREA 344		AREA 345		AREA 346		AREA 347		AREA 348		AREA 349		AREA 350		AREA 351		AREA 352		AREA 353		AREA 354		AREA 355		AREA 356		AREA 357		AREA 358		AREA 359		AREA 360		AREA 361		AREA 362		AREA 363		AREA 364		AREA 365		AREA 366		AREA 367		AREA 368		AREA 369		AREA 370		AREA 371		AREA 372		AREA 373		AREA 374		AREA 375		AREA 376		AREA 377		AREA 378		AREA 379		AREA 380		AREA 381		AREA 382		AREA 383		AREA 384		AREA 385		AREA 386		AREA 387		AREA 388		AREA 389		AREA 390		AREA 391		AREA 392		AREA 393		AREA 394		AREA 395		AREA 396		AREA 397		AREA 398		AREA 399		AREA 400		AREA 401		AREA 402		AREA 403		AREA 404		AREA 405		AREA 406		AREA 407		AREA 408		AREA 409		AREA 410		AREA 411		AREA 412		AREA 413		AREA 414		AREA 415		AREA 416		AREA 417		AREA 418		AREA 419		AREA 420		AREA 421		AREA 422		AREA 423		AREA 424		AREA 425		AREA 426		AREA 427		AREA 428		AREA 429		AREA 430		AREA 431		AREA 432		AREA 433		AREA 434		AREA 435		AREA 436		AREA 437		AREA 438		AREA 439		AREA 440	
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PROZIM	PICT2121	ALL Virus (No Barrenspage)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	
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ACCIDENT	INCIDENT	DESCRIPTION	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 454	AREA 455	AREA 456	AREA 457	AREA 458	AREA 459	AREA 460	AREA 461	AREA 462	AREA 463	AREA 464	AREA 465	AREA 466	AREA 467	AREA 468	AREA 469	AREA 470	AREA 471	AREA 472	AREA 473	AREA 474	AREA 475	AREA 476	AREA 477	AREA 478	AREA 479	AREA 480	AREA 481	AREA 482	AREA 483	AREA 484	AREA 485	AREA 486	AREA 487	AREA 488	AREA 489	AREA 490	AREA 491	AREA 492	AREA 493	AREA 494	AREA 495	AREA 496	AREA 497	AREA 498	AREA 499	AREA 500	AREA 501	AREA 502	AREA 503	AREA 504	AREA 505	AREA 506	AREA 507	AREA 508	AREA 509	AREA 510	AREA 511	AREA 512	AREA 513	AREA 514	AREA 515	AREA 516	AREA 517	AREA 518	AREA 519	AREA 520	AREA 521	AREA 522	AREA 523	AREA 524	AREA 525	AREA 526	AREA 527	AREA 528	AREA 529	AREA 530	AREA 531	AREA 532	AREA 533	AREA 534	AREA 535	AREA 536	AREA 537	AREA 538	AREA 539	AREA 540	AREA 541	AREA 542	AREA 543	AREA 544	AREA 545	AREA 546	AREA 547	AREA 548	AREA 549	AREA 550	AREA 551	AREA 552	AREA 553	AREA 554	AREA 555	AREA 556	AREA 557	AREA 558	AREA 559	AREA 560	AREA 561	AREA 562	AREA 563	AREA 564	AREA 565	AREA 566	AREA 567	AREA 568	AREA 569	AREA 570	AREA 571	AREA 572	AREA 573	AREA 574	AREA 575	AREA 576	AREA 577	AREA 578	AREA 579	AREA 580	AREA 581	AREA 582	AREA 583	AREA 584	AREA 585	AREA 586	AREA 587	AREA 588	AREA 589	AREA 590	AREA 591	AREA 592	AREA 593	AREA 594	AREA 595	AREA 596	AREA 597	AREA 598	AREA 599	AREA 600	AREA 601	AREA 602	AREA 603	AREA 604	AREA 605	AREA 606	AREA 607	AREA 608	AREA 609	AREA 610	AREA 611	AREA 612	AREA 613	AREA 614	AREA 615	AREA 616	AREA 617	AREA 618	AREA 619	AREA 620	AREA 621	AREA 622	AREA 623	AREA 624	AREA 625	AREA 626	AREA 627	AREA 628	AREA 629	AREA 630	AREA 631	AREA 632	AREA 633	AREA 634	AREA 635	AREA 636	AREA 637	AREA 638	AREA 639	AREA 640	AREA 641	AREA 642	AREA 643	AREA 644	AREA 645	AREA 646	AREA 647	AREA 648	AREA 649	AREA 650	AREA 651	AREA 652	AREA 653	AREA 654	AREA 655	AREA 656	AREA 657	AREA 658	AREA 659	AREA 660	AREA 661	AREA 662	AREA 663	AREA 664	AREA 665	AREA 666	AREA 667	AREA 668	AREA 669	AREA 670	AREA 671	AREA 672	AREA 673	AREA 674	AREA 675	AREA 676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
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PROTEIN	FUNCTION	GENE	Accession No.	AREA	AREA	AREA	AREA	AREA	AREA
VP1	STRUCTURAL PROTEIN	VP1	146-151						
VP2	STRUCTURAL PROTEIN	VP2	152-157						
VP3	STRUCTURAL PROTEIN	VP3	158-163						
VP4	STRUCTURAL PROTEIN	VP4	164-169						
VP5	STRUCTURAL PROTEIN	VP5	170-175						
VP6	STRUCTURAL PROTEIN	VP6	176-181						
VP7	STRUCTURAL PROTEIN	VP7	182-187						
VP8	STRUCTURAL PROTEIN	VP8	188-193						
VP9	STRUCTURAL PROTEIN	VP9	194-199						
VP10	STRUCTURAL PROTEIN	VP10	200-205						
VP11	STRUCTURAL PROTEIN	VP11	206-211						
VP12	STRUCTURAL PROTEIN	VP12	212-217						
VP13	STRUCTURAL PROTEIN	VP13	218-223						
VP14	STRUCTURAL PROTEIN	VP14	224-229						
VP15	STRUCTURAL PROTEIN	VP15	230-235						
VP16	STRUCTURAL PROTEIN	VP16	236-241						
VP17	STRUCTURAL PROTEIN	VP17	242-247						
VP18	STRUCTURAL PROTEIN	VP18	248-253						
VP19	STRUCTURAL PROTEIN	VP19	254-259						
VP20	STRUCTURAL PROTEIN	VP20	260-265						
VP21	STRUCTURAL PROTEIN	VP21	266-271						
VP22	STRUCTURAL PROTEIN	VP22	272-277						
VP23	STRUCTURAL PROTEIN	VP23	278-283						
VP24	STRUCTURAL PROTEIN	VP24	284-289						
VP25	STRUCTURAL PROTEIN	VP25	290-295						
VP26	STRUCTURAL PROTEIN	VP26	296-301						
VP27	STRUCTURAL PROTEIN	VP27	302-307						
VP28	STRUCTURAL PROTEIN	VP28	308-313						
VP29	STRUCTURAL PROTEIN	VP29	314-319						
VP30	STRUCTURAL PROTEIN	VP30	320-325						
VP31	STRUCTURAL PROTEIN	VP31	326-331						
VP32	STRUCTURAL PROTEIN	VP32	332-337						
VP33	STRUCTURAL PROTEIN	VP33	338-343						
VP34	STRUCTURAL PROTEIN	VP34	344-349						
VP35	STRUCTURAL PROTEIN	VP35	350-355						
VP36	STRUCTURAL PROTEIN	VP36	356-361						
VP37	STRUCTURAL PROTEIN	VP37	362-367						
VP38	STRUCTURAL PROTEIN	VP38	368-373						
VP39	STRUCTURAL PROTEIN	VP39	374-379						
VP40	STRUCTURAL PROTEIN	VP40	380-385						
VP41	STRUCTURAL PROTEIN	VP41	386-391						
VP42	STRUCTURAL PROTEIN	VP42	392-397						
VP43	STRUCTURAL PROTEIN	VP43	398-403						
VP44	STRUCTURAL PROTEIN	VP44	404-409						
VP45	STRUCTURAL PROTEIN	VP45	410-415						
VP46	STRUCTURAL PROTEIN	VP46	416-421						
VP47	STRUCTURAL PROTEIN	VP47	422-427						
VP48	STRUCTURAL PROTEIN	VP48	428-433						
VP49	STRUCTURAL PROTEIN	VP49	434-439						
VP50	STRUCTURAL PROTEIN	VP50	440-445						
VP51	STRUCTURAL PROTEIN	VP51	446-451						
VP52	STRUCTURAL PROTEIN	VP52	452-457						
VP53	STRUCTURAL PROTEIN	VP53	458-463						
VP54	STRUCTURAL PROTEIN	VP54	464-469						
VP55	STRUCTURAL PROTEIN	VP55	470-475						
VP56	STRUCTURAL PROTEIN	VP56	476-481						
VP57	STRUCTURAL PROTEIN	VP57	482-487						
VP58	STRUCTURAL PROTEIN	VP58	488-493						
VP59	STRUCTURAL PROTEIN	VP59	494-499						
VP60	STRUCTURAL PROTEIN	VP60	500-505						
VP61	STRUCTURAL PROTEIN	VP61	506-511						
VP62	STRUCTURAL PROTEIN	VP62	512-517						
VP63	STRUCTURAL PROTEIN	VP63	518-523						
VP64	STRUCTURAL PROTEIN	VP64	524-529						
VP65	STRUCTURAL PROTEIN	VP65	530-535						
VP66	STRUCTURAL PROTEIN	VP66	536-541						
VP67	STRUCTURAL PROTEIN	VP67	542-547						
VP68	STRUCTURAL PROTEIN	VP68	548-553						
VP69	STRUCTURAL PROTEIN	VP69	554-559						
VP70	STRUCTURAL PROTEIN	VP70	560-565						
VP71	STRUCTURAL PROTEIN	VP71	566-571						
VP72	STRUCTURAL PROTEIN	VP72	572-577						
VP73	STRUCTURAL PROTEIN	VP73	578-583						
VP74	STRUCTURAL PROTEIN	VP74	584-589						
VP75	STRUCTURAL PROTEIN	VP75	590-595						
VP76	STRUCTURAL PROTEIN	VP76	596-601						
VP77	STRUCTURAL PROTEIN	VP77	602-607						
VP78	STRUCTURAL PROTEIN	VP78	608-613						
VP79	STRUCTURAL PROTEIN	VP79	614-619						
VP80	STRUCTURAL PROTEIN	VP80	620-625						
VP81	STRUCTURAL PROTEIN	VP81	626-631						
VP82	STRUCTURAL PROTEIN	VP82	632-637						
VP83	STRUCTURAL PROTEIN	VP83	638-643						
VP84	STRUCTURAL PROTEIN	VP84	644-649						
VP85	STRUCTURAL PROTEIN	VP85	650-655						
VP86	STRUCTURAL PROTEIN	VP86	656-661						
VP87	STRUCTURAL PROTEIN	VP87	662-667						
VP88	STRUCTURAL PROTEIN	VP88	668-673						
VP89	STRUCTURAL PROTEIN	VP89	674-679						
VP90	STRUCTURAL PROTEIN	VP90	680-685						
VP91	STRUCTURAL PROTEIN	VP91	686-691						
VP92	STRUCTURAL PROTEIN	VP92	692-697						
VP93	STRUCTURAL PROTEIN	VP93	698-703						
VP94	STRUCTURAL PROTEIN	VP94	704-709						
VP95	STRUCTURAL PROTEIN	VP95	710-715						
VP96	STRUCTURAL PROTEIN	VP96	716-721						
VP97	STRUCTURAL PROTEIN	VP97	722-727						
VP98	STRUCTURAL PROTEIN	VP98	728-733						
VP99	STRUCTURAL PROTEIN	VP99	734-739						
VP100	STRUCTURAL PROTEIN	VP100	740-745						

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PCORDE	FUNCTION	ALL Viruses (No Restriction)	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7	AREA8	AREA9	AREA10	AREA11	AREA12	AREA13	AREA14	AREA15	AREA16	AREA17	AREA18	AREA19	AREA20	AREA21	AREA22	AREA23	AREA24	AREA25	AREA26	AREA27	AREA28	AREA29	AREA30	AREA31	AREA32	AREA33	AREA34	AREA35	AREA36	AREA37	AREA38	AREA39	AREA40	AREA41	AREA42	AREA43	AREA44	AREA45	AREA46	AREA47	AREA48	AREA49	AREA50	AREA51	AREA52	AREA53	AREA54	AREA55	AREA56	AREA57	AREA58	AREA59	AREA60	AREA61	AREA62	AREA63	AREA64	AREA65	AREA66	AREA67	AREA68	AREA69	AREA70	AREA71	AREA72	AREA73	AREA74	AREA75	AREA76	AREA77	AREA78	AREA79	AREA80	AREA81	AREA82	AREA83	AREA84	AREA85	AREA86	AREA87	AREA88	AREA89	AREA90	AREA91	AREA92	AREA93	AREA94	AREA95	AREA96	AREA97	AREA98	AREA99	AREA100	AREA101	AREA102	AREA103	AREA104	AREA105	AREA106	AREA107	AREA108	AREA109	AREA110	AREA111	AREA112	AREA113	AREA114	AREA115	AREA116	AREA117	AREA118	AREA119	AREA120	AREA121	AREA122	AREA123	AREA124	AREA125	AREA126	AREA127	AREA128	AREA129	AREA130	AREA131	AREA132	AREA133	AREA134	AREA135	AREA136	AREA137	AREA138	AREA139	AREA140	AREA141	AREA142	AREA143	AREA144	AREA145	AREA146	AREA147	AREA148	AREA149	AREA150	AREA151	AREA152	AREA153	AREA154	AREA155	AREA156	AREA157	AREA158	AREA159	AREA160	AREA161	AREA162	AREA163	AREA164	AREA165	AREA166	AREA167	AREA168	AREA169	AREA170	AREA171	AREA172	AREA173	AREA174	AREA175	AREA176	AREA177	AREA178	AREA179	AREA180	AREA181	AREA182	AREA183	AREA184	AREA185	AREA186	AREA187	AREA188	AREA189	AREA190	AREA191	AREA192	AREA193	AREA194	AREA195	AREA196	AREA197	AREA198	AREA199	AREA200	AREA201	AREA202	AREA203	AREA204	AREA205	AREA206	AREA207	AREA208	AREA209	AREA210	AREA211	AREA212	AREA213	AREA214	AREA215	AREA216	AREA217	AREA218	AREA219	AREA220	AREA221	AREA222	AREA223	AREA224	AREA225	AREA226	AREA227	AREA228	AREA229	AREA230	AREA231	AREA232	AREA233	AREA234	AREA235	AREA236	AREA237	AREA238	AREA239	AREA240	AREA241	AREA242	AREA243	AREA244	AREA245	AREA246	AREA247	AREA248	AREA249	AREA250	AREA251	AREA252	AREA253	AREA254	AREA255	AREA256	AREA257	AREA258	AREA259	AREA260	AREA261	AREA262	AREA263	AREA264	AREA265	AREA266	AREA267	AREA268	AREA269	AREA270	AREA271	AREA272	AREA273	AREA274	AREA275	AREA276	AREA277	AREA278	AREA279	AREA280	AREA281	AREA282	AREA283	AREA284	AREA285	AREA286	AREA287	AREA288	AREA289	AREA290	AREA291	AREA292	AREA293	AREA294	AREA295	AREA296	AREA297	AREA298	AREA299	AREA300	AREA301	AREA302	AREA303	AREA304	AREA305	AREA306	AREA307	AREA308	AREA309	AREA310	AREA311	AREA312	AREA313	AREA314	AREA315	AREA316	AREA317	AREA318	AREA319	AREA320	AREA321	AREA322	AREA323	AREA324	AREA325	AREA326	AREA327	AREA328	AREA329	AREA330	AREA331	AREA332	AREA333	AREA334	AREA335	AREA336	AREA337	AREA338	AREA339	AREA340	AREA341	AREA342	AREA343	AREA344	AREA345	AREA346	AREA347	AREA348	AREA349	AREA350	AREA351	AREA352	AREA353	AREA354	AREA355	AREA356	AREA357	AREA358	AREA359	AREA360	AREA361	AREA362	AREA363	AREA364	AREA365	AREA366	AREA367	AREA368	AREA369	AREA370	AREA371	AREA372	AREA373	AREA374	AREA375	AREA376	AREA377	AREA378	AREA379	AREA380	AREA381	AREA382	AREA383	AREA384	AREA385	AREA386	AREA387	AREA388	AREA389	AREA390	AREA391	AREA392	AREA393	AREA394	AREA395	AREA396	AREA397	AREA398	AREA399	AREA400	AREA401	AREA402	AREA403	AREA404	AREA405	AREA406	AREA407	AREA408	AREA409	AREA410	AREA411	AREA412	AREA413	AREA414	AREA415	AREA416	AREA417	AREA418	AREA419	AREA420	AREA421	AREA422	AREA423	AREA424	AREA425	AREA426	AREA427	AREA428	AREA429	AREA430	AREA431	AREA432	AREA433	AREA434	AREA435	AREA436	AREA437	AREA438	AREA439	AREA440	AREA441	AREA442	AREA443	AREA444	AREA445	AREA446	AREA447	AREA448	AREA449	AREA450	AREA451	AREA452	AREA453	AREA454	AREA455	AREA456	AREA457	AREA458	AREA459	AREA460	AREA461	AREA462	AREA463	AREA464	AREA465	AREA466	AREA467	AREA468	AREA469	AREA470	AREA471	AREA472	AREA473	AREA474	AREA475	AREA476	AREA477	AREA478	AREA479	AREA480	AREA481	AREA482	AREA483	AREA484	AREA485	AREA486	AREA487	AREA488	AREA489	AREA490	AREA491	AREA492	AREA493	AREA494	AREA495	AREA496	AREA497	AREA498	AREA499	AREA500	AREA501	AREA502	AREA503	AREA504	AREA505	AREA506	AREA507	AREA508	AREA509	AREA510	AREA511	AREA512	AREA513	AREA514	AREA515	AREA516	AREA517	AREA518	AREA519	AREA520	AREA521	AREA522	AREA523	AREA524	AREA525	AREA526	AREA527	AREA528	AREA529	AREA530	AREA531	AREA532	AREA533	AREA534	AREA535	AREA536	AREA537	AREA538	AREA539	AREA540	AREA541	AREA542	AREA543	AREA544	AREA545	AREA546	AREA547	AREA548	AREA549	AREA550	AREA551	AREA552	AREA553	AREA554	AREA555	AREA556	AREA557	AREA558	AREA559	AREA560	AREA561	AREA562	AREA563	AREA564	AREA565	AREA566	AREA567	AREA568	AREA569	AREA570	AREA571	AREA572	AREA573	AREA574	AREA575	AREA576	AREA577	AREA578	AREA579	AREA580	AREA581	AREA582	AREA583	AREA584	AREA585	AREA586	AREA587	AREA588	AREA589	AREA590	AREA591	AREA592	AREA593	AREA594	AREA595	AREA596	AREA597	AREA598	AREA599	AREA600	AREA601	AREA602	AREA603	AREA604	AREA605	AREA606	AREA607	AREA608	AREA609	AREA610	AREA611	AREA612	AREA613	AREA614	AREA615	AREA616	AREA617	AREA618	AREA619	AREA620	AREA621	AREA622	AREA623	AREA624	AREA625	AREA626	AREA627	AREA628	AREA629	AREA630	AREA631	AREA632	AREA633	AREA634	AREA635	AREA636	AREA637	AREA638	AREA639	AREA640	AREA641	AREA642	AREA643	AREA644	AREA645	AREA646	AREA647	AREA648	AREA649	AREA650	AREA651	AREA652	AREA653	AREA654	AREA655	AREA656	AREA657	AREA658	AREA659	AREA660	AREA661	AREA662	AREA663	AREA664	AREA665	AREA666	AREA667	AREA668	AREA669	AREA670	AREA671	AREA672	AREA673	AREA674	AREA675	AREA676	AREA677	AREA678	AREA679	AREA680	AREA681	AREA682	AREA683	AREA684	AREA685	AREA686	AREA687	AREA688	AREA689	AREA690	AREA691	AREA692	AREA693	AREA694	AREA695	AREA696	AREA697	AREA698	AREA699	AREA700	AREA701	AREA702	AREA703	AREA704	AREA705	AREA706	AREA707	AREA708	AREA709	AREA710	AREA711	AREA712	AREA713	AREA714	AREA715	AREA716	AREA717	AREA718	AREA719	AREA720	AREA721	AREA722	AREA723	AREA724	AREA725	AREA726	AREA727	AREA728	AREA729	AREA730	AREA731	AREA732	AREA733	AREA734	AREA735	AREA736	AREA737	AREA738	AREA739	AREA740	AREA741	AREA742	AREA743	AREA744	AREA745	AREA746	AREA747	AREA748	AREA749	AREA750	AREA751	AREA752	AREA753	AREA754	AREA755	AREA756	AREA757	AREA758	AREA759	AREA760	AREA761	AREA762	AREA763	AREA764	AREA765	AREA766	AREA767	AREA768	AREA769	AREA770	AREA771	AREA772	AREA773	AREA774	AREA775	AREA776	AREA777	AREA778	AREA779	AREA780	AREA781	AREA782	AREA783	AREA784	AREA785	AREA786	AREA787	AREA788	AREA789	AREA790	AREA791	AREA792	AREA793	AREA794	AREA795	AREA796	AREA797	AREA798	AREA799	AREA800	AREA801	AREA802	AREA803	AREA804	AREA805	AREA806	AREA807	AREA808	AREA809	AREA810	AREA811	AREA812	AREA813	AREA814	AREA815	AREA816	AREA817	AREA818	AREA819	AREA820	AREA821	AREA822	AREA823	AREA824	AREA825	AREA826	AREA827	AREA828	AREA829	AREA830	AREA831	AREA832	AREA833	AREA834	AREA835	AREA836	AREA837	AREA838	AREA839	AREA840	AREA841	AREA842	AREA843	AREA844	AREA845	AREA846	AREA847	AREA848	AREA849	AREA850	AREA851	AREA852	AREA853	AREA854	AREA855	AREA856	AREA857	AREA858	AREA859	AREA860	AREA861	AREA862	AREA863	AREA864	AREA865	AREA866	AREA867	AREA868	AREA869	AREA870	AREA871	AREA872	AREA873	AREA874	AREA875	AREA876	AREA877	AREA878	AREA879	AREA880	AREA881	AREA882	AREA883	AREA884	AREA885	AREA886	AREA887	AREA888	AREA889	AREA890	AREA891	AREA892	AREA893	AREA894	AREA895	AREA896	AREA897	AREA898	AREA899	AREA900	AREA901	AREA902	AREA903	AREA904	AREA905	AREA906	AREA907	AREA908	AREA909	AREA910	AREA911	AREA912	AREA913	AREA914	AREA915	AREA916	AREA917	AREA918	AREA919	AREA920	AREA921	AREA922	AREA923	AREA924	AREA925	AREA926	AREA927	AREA928	AREA929	AREA930	AREA931	AREA932	AREA933	AREA934	AREA935	AREA936	AREA937	AREA938	AREA939	AREA940	AREA941	AREA942	AREA943	AREA944	AREA945	AREA946	AREA947	AREA948	AREA949	AREA950	AREA951	AREA952	AREA953	AREA954	AREA955	AREA956	AREA957	AREA958	AREA959	AREA960	AREA961	AREA962	AREA963	AREA964	AREA965	AREA966	AREA967	AREA968	AREA969	AREA970	AREA971	AREA972	AREA973	AREA974	AREA975	AREA976	AREA977	AREA978	AREA979	AREA980	AREA981	AREA982	AREA983	AREA984	AREA985	AREA986	AREA987	AREA988	AREA989	AREA990	AREA991	AREA992	AREA993	AREA994	AREA995	AREA996	AREA997	AREA998	AREA999	AREA1000
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TABLE XIV

SEARCH RESULTS SUMMARY

FOR P23TLZIPC MOTIF

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307

AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259	AREA 260	AREA 261	AREA 262	AREA 263	AREA 264	AREA 265	AREA 266	AREA 267	AREA 268	AREA 269	AREA 270	AREA 271	AREA 272	AREA 273	AREA 274	AREA 275	AREA 276	AREA 277	AREA 278	AREA 279	AREA 280	AREA 281	AREA 282	AREA 283	AREA 284	AREA 285	AREA 286	AREA 287	AREA 288	AREA 289	AREA 290	AREA 291	AREA 292	AREA 293	AREA 294	AREA 295	AREA 296	AREA 297	AREA 298	AREA 299	AREA 300	AREA 301	AREA 302	AREA 303	AREA 304	AREA 305	AREA 306	AREA 307	AREA 308	AREA 309	AREA 310	AREA 311	AREA 312	AREA 313	AREA 314	AREA 315	AREA 316	AREA 317	AREA 318	AREA 319	AREA 320	AREA 321	AREA 322	AREA 323	AREA 324	AREA 325	AREA 326	AREA 327	AREA 328	AREA 329	AREA 330	AREA 331	AREA 332	AREA 333	AREA 334	AREA 335	AREA 336	AREA 337	AREA 338	AREA 339	AREA 340	AREA 341	AREA 342	AREA 343	AREA 344	AREA 345	AREA 346	AREA 347	AREA 348	AREA 349	AREA 350	AREA 351	AREA 352	AREA 353	AREA 354	AREA 355	AREA 356	AREA 357	AREA 358	AREA 359	AREA 360	AREA 361	AREA 362	AREA 363	AREA 364	AREA 365	AREA 366	AREA 367	AREA 368	AREA 369	AREA 370	AREA 371	AREA 372	AREA 373	AREA 374	AREA 375	AREA 376	AREA 377	AREA 378	AREA 379	AREA 380	AREA 381	AREA 382	AREA 383	AREA 384	AREA 385	AREA 386	AREA 387	AREA 388	AREA 389	AREA 390	AREA 391	AREA 392	AREA 393	AREA 394	AREA 395	AREA 396	AREA 397	AREA 398	AREA 399	AREA 400	AREA 401	AREA 402	AREA 403	AREA 404	AREA 405	AREA 406	AREA 407	AREA 408	AREA 409	AREA 410	AREA 411	AREA 412	AREA 413	AREA 414	AREA 415	AREA 416	AREA 417	AREA 418	AREA 419	AREA 420	AREA 421	AREA 422	AREA 423	AREA 424	AREA 425	AREA 426	AREA 427	AREA 428	AREA 429	AREA 430	AREA 431	AREA 432	AREA 433	AREA 434	AREA 435	AREA 436	AREA 437	AREA 438	AREA 439	AREA 440	AREA 441	AREA 442	AREA 443	AREA 444	AREA 445	AREA 446	AREA 447	AREA 448	AREA 449	AREA 450	AREA 451	AREA 452	AREA 453	AREA 454	AREA 455	AREA 456	AREA 457	AREA 458	AREA 459	AREA 460	AREA 461	AREA 462	AREA 463	AREA 464	AREA 465	AREA 466	AREA 467	AREA 468	AREA 469	AREA 470	AREA 471	AREA 472	AREA 473	AREA 474	AREA 475	AREA 476	AREA 477	AREA 478	AREA 479	AREA 480	AREA 481	AREA 482	AREA 483	AREA 484	AREA 485	AREA 486	AREA 487	AREA 488	AREA 489	AREA 490	AREA 491	AREA 492	AREA 493	AREA 494	AREA 495	AREA 496	AREA 497	AREA 498	AREA 499	AREA 500	AREA 501	AREA 502	AREA 503	AREA 504	AREA 505	AREA 506	AREA 507	AREA 508	AREA 509	AREA 510	AREA 511	AREA 512	AREA 513	AREA 514	AREA 515	AREA 516	AREA 517	AREA 518	AREA 519	AREA 520	AREA 521	AREA 522	AREA 523	AREA 524	AREA 525	AREA 526	AREA 527	AREA 528	AREA 529	AREA 530	AREA 531	AREA 532	AREA 533	AREA 534	AREA 535	AREA 536	AREA 537	AREA 538	AREA 539	AREA 540	AREA 541	AREA 542	AREA 543	AREA 544	AREA 545	AREA 546	AREA 547	AREA 548	AREA 549	AREA 550	AREA 551	AREA 552	AREA 553	AREA 554	AREA 555	AREA 556	AREA 557	AREA 558	AREA 559	AREA 560	AREA 561	AREA 562	AREA 563	AREA 564	AREA 565	AREA 566	AREA 567	AREA 568	AREA 569	AREA 570	AREA 571	AREA 572	AREA 573	AREA 574	AREA 575	AREA 576	AREA 577	AREA 578	AREA 579	AREA 580	AREA 581	AREA 582	AREA 583	AREA 584	AREA 585	AREA 586	AREA 587	AREA 588	AREA 589	AREA 590	AREA 591	AREA 592	AREA 593	AREA 594	AREA 595	AREA 596	AREA 597	AREA 598	AREA 599	AREA 600	AREA 601	AREA 602	AREA 603	AREA 604	AREA 605	AREA 606	AREA 607	AREA 608	AREA 609	AREA 610	AREA 611	AREA 612	AREA 613	AREA 614	AREA 615	AREA 616	AREA 617	AREA 618	AREA 619	AREA 620	AREA 621	AREA 622	AREA 623	AREA 624	AREA 625	AREA 626	AREA 627	AREA 628	AREA 629	AREA 630	AREA 631	AREA 632	AREA 633	AREA 634	AREA 635	AREA 636	AREA 637	AREA 638	AREA 639	AREA 640	AREA 641	AREA 642	AREA 643	AREA 644	AREA 645	AREA 646	AREA 647	AREA 648	AREA 649	AREA 650	AREA 651	AREA 652	AREA 653	AREA 654	AREA 655	AREA 656	AREA 657	AREA 658	AREA 659	AREA 660	AREA 661	AREA 662	AREA 663	AREA 664	AREA 665	AREA 666	AREA 667	AREA 668	AREA 669	AREA 670	AREA 671	AREA 672	AREA 673	AREA 674	AREA 675	AREA 676	AREA 677	AREA 678	AREA 679	AREA 680	AREA 681	AREA 682	AREA 683	AREA 684	AREA 685	AREA 686	AREA 687	AREA 688	AREA 689	AREA 690	AREA 691	AREA 692	AREA 693	AREA 694	AREA 695	AREA 696	AREA 697	AREA 698	AREA 699	AREA 700	AREA 701	AREA 702	AREA 703	AREA 704	AREA 705	AREA 706	AREA 707	AREA 708	AREA 709	AREA 710	AREA 711	AREA 712	AREA 713	AREA 714	AREA 715	AREA 716	AREA 717	AREA 718	AREA 719	AREA 720	AREA 721	AREA 722	AREA 723	AREA 724	AREA 725	AREA 726	AREA 727	AREA 728	AREA 729	AREA 730	AREA 731	AREA 732	AREA 733	AREA 734	AREA 735	AREA 736	AREA 737	AREA 738	AREA 739	AREA 740	AREA 741	AREA 742	AREA 743	AREA 744	AREA 745	AREA 746	AREA 747	AREA 748	AREA 749	AREA 750	AREA 751	AREA 752	AREA 753	AREA 754	AREA 755	AREA 756	AREA 757	AREA 758	AREA 759	AREA 760	AREA 761	AREA 762	AREA 763	AREA 764	AREA 765	AREA 766	AREA 767	AREA 768	AREA 769	AREA 770	AREA 771	AREA 772	AREA 773	AREA 774	AREA 775	AREA 776	AREA 777	AREA 778	AREA 779	AREA 780	AREA 781	AREA 782	AREA 783	AREA 784	AREA 785	AREA 786	AREA 787	AREA 788	AREA 789	AREA 790	AREA 791	AREA 792	AREA 793	AREA 794	AREA 795	AREA 796	AREA 797	AREA 798	AREA 799	AREA 800	AREA 801	AREA 802	AREA 803	AREA 804	AREA 805	AREA 806	AREA 807	AREA 808	AREA 809	AREA 810	AREA 811	AREA 812	AREA 813	AREA 814	AREA 815	AREA 816	AREA 817	AREA 818	AREA 819	AREA 820	AREA 821	AREA 822	AREA 823	AREA 824	AREA 825	AREA 826	AREA 827	AREA 828	AREA 829	AREA 830	AREA 831	AREA 832	AREA 833	AREA 834	AREA 835	AREA 836	AREA 837	AREA 838	AREA 839	AREA 840	AREA 841	AREA 842	AREA 843	AREA 844	AREA 845	AREA 846	AREA 847	AREA 848	AREA 849	AREA 850	AREA 851	AREA 852	AREA 853	AREA 854	AREA 855	AREA 856	AREA 857	AREA 858	AREA 859	AREA 860	AREA 861	AREA 862	AREA 863	AREA 864	AREA 865	AREA 866	AREA 867	AREA 868	AREA 869	AREA 870	AREA 871	AREA 872	AREA 873	AREA 874	AREA 875	AREA 876	AREA 877	AREA 878	AREA 879	AREA 880	AREA 881	AREA 882	AREA 883	AREA 884	AREA 885	AREA 886	AREA 887	AREA 888	AREA 889	AREA 890	AREA 891	AREA 892	AREA 893	AREA 894	AREA 895	AREA 896	AREA 897	AREA 898	AREA 899	AREA 900	AREA 901	AREA 902	AREA 903	AREA 904	AREA 905	AREA 906	AREA 907	AREA 908	AREA 909	AREA 910	AREA 911	AREA 912	AREA 913	AREA 914	AREA 915	AREA 916	AREA 917	AREA 918	AREA 919	AREA 920	AREA 921	AREA 922	AREA 923	AREA 924	AREA 925	AREA 926	AREA 927	AREA 928	AREA 929	AREA 930	AREA 931	AREA 932	AREA 933	AREA 934	AREA 935	AREA 936	AREA 937	AREA 938	AREA 939	AREA 940	AREA 941	AREA 942	AREA 943	AREA 944	AREA 945	AREA 946	AREA 947	AREA 948	AREA 949	AREA 950	AREA 951	AREA 952	AREA 953	AREA 954	AREA 955	AREA 956	AREA 957	AREA 958	AREA 959	AREA 960	AREA 961	AREA 962	AREA 963	AREA 964	AREA 965	AREA 966	AREA 967	AREA 968	AREA 969	AREA 970	AREA 971	AREA 972	AREA 973	AREA 974	AREA 975	AREA 976	AREA 977	AREA 978	AREA 979	AREA 980	AREA 981	AREA 982	AREA 983	AREA 984	AREA 985	AREA 986	AREA 987	AREA 988	AREA 989	AREA 990	AREA 991	AREA 992	AREA 993	AREA 994	AREA 995	AREA 996	AREA 997	AREA 998	AREA 999	AREA 1000
AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9	AREA 10	AREA 11	AREA 12	AREA 13	AREA 14	AREA 15	AREA 16	AREA 17	AREA 18	AREA 19	AREA 20	AREA 21	AREA 22	AREA 23	AREA 24	AREA 25	AREA 26	AREA 27	AREA 28	AREA 29	AREA 30	AREA 31	AREA 32	AREA 33	AREA 34	AREA 35	AREA 36	AREA 37	AREA 38	AREA 39	AREA 40	AREA 41	AREA 42	AREA 43	AREA 44	AREA 45	AREA 46	AREA 47	AREA 48	AREA 49	AREA 50	AREA 51	AREA 52	AREA 53	AREA 54	AREA 55	AREA 56	AREA 57	AREA 58	AREA 59	AREA 60	AREA 61	AREA 62	AREA 63	AREA 64	AREA 65	AREA 66	AREA 67	AREA 68	AREA 69	AREA 70	AREA 71	AREA 72	AREA 73	AREA 74	AREA 75	AREA 76	AREA 77	AREA 78	AREA 79	AREA 80	AREA 81	AREA 82	AREA 83	AREA 84	AREA 85	AREA 86	AREA 87	AREA 88	AREA 89	AREA 90	AREA 91	AREA 92	AREA 93	AREA 94	AREA 95	AREA 96	AREA 97	AREA 98	AREA 99	AREA 100	AREA 101	AREA 102	AREA 103	AREA 104	AREA 105	AREA 106	AREA 107	AREA 108	AREA 109	AREA 110	AREA 111	AREA 112	AREA 113	AREA 114	AREA 115	AREA 116	AREA 117	AREA 118	AREA 119	AREA 120	AREA 121	AREA 122	AREA 123	AREA 124	AREA 125	AREA 126	AREA 127	AREA 128	AREA 129	AREA 130	AREA 131	AREA 132	AREA 133	AREA 134	AREA 135	AREA 136	AREA 137	AREA 138	AREA 139	AREA 140	AREA 141	AREA 142	AREA 143	AREA 144	AREA 145	AREA 146	AREA 147	AREA 148	AREA 149	AREA 150	AREA 151	AREA 152	AREA 153	AREA 154	AREA 155	AREA 156	AREA 157	AREA 158	AREA 159	AREA 160	AREA 161	AREA 162	AREA 163	AREA 164	AREA 165	AREA 166	AREA 167	AREA 168	AREA 169	AREA 170	AREA 171	AREA 172	AREA 173	AREA 174	AREA 175	AREA 176	AREA 177	AREA 178	AREA 179	AREA 180	AREA 181	AREA 182	AREA 183	AREA 184	AREA 185	AREA 186	AREA 187	AREA 188	AREA 189	AREA 190	AREA 191	AREA 192	AREA 193	AREA 194	AREA 195	AREA 196	AREA 197	AREA 198	AREA 199	AREA 200	AREA 201	AREA 202	AREA 203	AREA 204	AREA 205	AREA 206	AREA 207	AREA 208	AREA 209	AREA 210	AREA 211	AREA 212	AREA 213	AREA 214	AREA 215	AREA 216	AREA 217	AREA 218	AREA 219	AREA 220	AREA 221	AREA 222	AREA 223	AREA 224	AREA 225	AREA 226	AREA 227	AREA 228	AREA 229	AREA 230	AREA 231	AREA 232	AREA 233	AREA 234	AREA 235	AREA 236	AREA 237	AREA 238	AREA 239	AREA 240	AREA 241	AREA 242	AREA 243	AREA 244	AREA 245	AREA 246	AREA 247	AREA 248	AREA 249	AREA 250	AREA 251	AREA 252	AREA 253	AREA 254	AREA 255	AREA 256	AREA 257	AREA 258	AREA 259																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
IIAGEN)	2.40	61.93					
	2.40	61.93					
	297.330						
	237.267						
	89.118						
IIAGEN)	28.61						
	28.61						
	28.61						
INEL CATFISH VIRUS) (CCV)	317.346						
IRAIN AD4P) (EIV-1)	163.196						
ND VACCINIA VIRUS (STRAIN COTENIACI	92.120						
	92.120						
INEL CATFISH VIRUS) (CCV)	108.136						
INEL CATFISH VIRUS) (CCV)	34.83						
IIAGEN)	99.136						
	99.136						
IIAGEN)	113.143						
	113.143						
IIAGEN)	303.338						
	266.301						
	303.338						
INEL CATFISH VIRUS) (CCV)	150.183						
INEL CATFISH VIRUS) (CCV)	206.243						
I)	68.106						
B	254.292	303.337	414.432				
INEL CATFISH VIRUS) (CCV)	300.337	647.678					
INEL CATFISH VIRUS) (CCV)	70.108						
INEL CATFISH VIRUS) (CCV)	94.125						
I)	36.74						
INEL CATFISH VIRUS) (CCV)	491.521						
VIRUS (AMEPV)	180.217						
	207.244						
INEL CATFISH VIRUS) (CCV)	13.46	190.226					
I)	151.183						

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
ANSEL CATFISH VIRUS (CCV)	187-221						
IB	18-46						
S VIRUS (STRAIN BEAUDETTE) (HIV)	1719-1747	1836-1891	2109-2146	3601-3633			
TRAIN AD169)	80-113	152-183					
(F13)	1259-1294						
(L9)	651-681						
(LY-138)	1259-1294						
(MEDUS)	1259-1294						
(QUEBEC)	1259-1294						
(VACCINE)	1259-1294						
(229E)	1033-1088						
TRAIN WILD TYPE 4) (HIV-4)	1267-1304						
TRAIN A59	1215-1252						
TRAIN HIV / VARIANT CL-2)	1267-1304						
TRAIN HIV)	1126-1163						
ROENTERITIS CORONAVIRUS	632-663	336-764	1328-1363				
ROENTERITIS CORONAVIRUS	632-663	336-764	1328-1363				
ROENTERITIS CORONAVIRUS	630-663	334-762	1326-1361				
ROENTERITIS CORONAVIRUS	630-663	334-762	1326-1361				
AVIRUS	312-340	1104-1139					
AVIRUS (STRAIN RM14) (PCV)	408-441	312-340	1104-1139				
ROENTERITIS CORONAVIRUS (STRAIN NE)	630-663	334-762	1326-1361				
S VIRUS (STRAIN 79-1146) (FIPV)	635-668	339-767	1331-1366				
S VIRUS (STRAIN BEAUDETTE) (HIV)	153-188						
TRAIN AD169)	116-147	306-343					
TRAIN TOWNE)	116-147	307-344					
/ STRAIN UGANDA-1102)	72-110						
	354-388						
TRAIN HIV) (BOVINE MAMMILLITIS VIRUS	745-774						
TRAIN COOPER	333-387						

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 7
	221-239	434-487				
ATA-1)	224-236	431-484				
	5-38	446-474				
LA VACCINE)	446-474					
	446-474					
	5-38	446-474				
RAIN ITALIEN/45) (NDV)	132-165					
RAIN LAS/46) (NDV)	132-165					
	531-565					
S (STRAIN C39)	456-484					
S	453-481					
S (STRAIN NIH 47885	453-481					
ETE O) (NDV)	220-252	447-480				
DV)	220-252	447-480				
MUTANTS)	460-488					
	460-488					
	460-488					
	460-488					
	460-488					
	460-488					
	446-474					
S) (TRIV)	452-481					
RAIN AD4P) (EIV-1)	327-364					
YNY)	524-553					
SEROTYPE INDIANA / STRAIN GLASGOW)	450-488					
SEROTYPE NEW JERSEY / STRAIN OGDEN)	457-492					
STRAIN ORSAY)	450-488					
STRAIN SAN JUAN)	450-488					
RAIN AD169)	691-719					
RAIN TOWNE)	690-718					
'S STRAIN GS)	213-247	640-677				
	814-850					
	807-843					
RAIN AD160")	158-194					

	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
	12.50						
	12.50						
	12.50	89.124					
	12.50	89.124					
	12.50	89.124					
115981	1527.1555						
	209.242	741.771					
(STRAIN DGI	50.86	479.515					
IV)	266.799						
(95-8) (HUMAN HERPESVIRUS 4)	78.111						
(95-8) (HUMAN HERPESVIRUS 4)	78.111						
SHAGEN)	54.89						
	54.89						
SHAGEN)	115.149						
	115.149						
	113.167						
	107.143						
SHAGEN)	54.82						
	54.82						
	55.88						
	55.88						
SHAGEN)	55.88						
	591.624						
	591.624						
	591.624						
RAIN AD169)	100.271						
RAIN TOWNE)	100.271						
RUS (ISOLATE 106) (HIV)	42.78						
RUC (ISOLATE 127) (HIV)	42.78						

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6
9	29-39	285-313				
2	344-379					
7	26-37					
1	29-39					
B	37-37					
TE100	29-39					
VIRUS TYPE I	29-39					
INSECT INDIKESCENT VIRUS TYPE I)	144-177	686-718				
ING	200-318	324-361				
	200-318					
ING)	168-199					
ING)	168-199					
YES)	168-199					
	168-199					
ING)	33-364					
	308-342					
(TRTV)	122-150					
IEBUS)	64-102					
C4)	64-102					
AIN A59)	63-103					
AIN HIN)	65-103					
(TCV)	64-102					
IRUS (STRAIN BEAUDETTE) (IBV)	73-101					
IRUS (STRAIN BEAUDETTE N142) (IBV)	73-101					
-8) (HUMAN HERPESVIRUS 4)	178-213					
(CERV)	93-126					
RUS	66-98	273-303				
SHANGHAI DUCK ISOLATE S1) (DIBV)	201-238	269-302				
CHINA) (DHBV)	194-237	268-301				
	157-190	231-264				
SHANGHAI DUCK ISOLATE S1) (DIBV)	194-238	269-302				
US (GSIV)	209-243	271-307				
	159-193	236-269				
	70-98					

	AREA1	AREA2	AREA3	AREA4	AREA5	AREA6	AREA7
NE)	304	141-170					
NE)	266-382						
AGEN	31-68						
	31-68						
	31-68						
TRAIN (COVIDEN)	336-366						
2)	163-176	365-401					
	180-217	346-377	439-471				
(SEROTYPE 4 / STRAIN VACCINE)	351-380						
ASKA/97)	114-144						
IN ARDON/6/60)	114-144						
ILE/1/61)	114-144						
HICKENGE/RAIAN/V/1/69)	107-144						
HICKEN/IA/PAN/24)	104-141						
ICV/ALBERTA/60/76)	107-144						
ICKENGLAND/1/56)	104-141						
ICKUKRAINE/1/63)	104-141						
RT MONNOUTH/1/42)	114-144						
RT WARREN/1/50)	114-144						
WIL PLAGUE VIRUS/ROSTOCK/1/6)	107-144						
NINGRAD/1/457)	114-144						
NINGRAD/3/1)	114-144						
ALLARD/ALBERTA/18/76)	107-144						
ALLARI/NEW YORK/6750/78)	107-144						
ALLARI/NEW YORK/6870/78)	107-144						
VNA/VI/IANEDA-THA/1/76)	104-141						
NTAIL/ALBERTA/11/79)	107-144						
NTAIL/ALBERTA/12/79)	107-144						
NTAIL/ALBERTA/26/78)	107-144						
NTAIL/ALBERTA/13/70)	107-144						

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
ICKENTENNSYL VANIA/1/83)	354-388						
LINE/LONDON/1416/73)	354-388						
JINE/PRAGUE/1/56)	354-388						
JINE/TENNESSEE/3/86)	354-388						
)	16-46						
)	16-46						
IGEN	511-539	550-581					
)	511-539						
) (PVA-1)	121-150	641-671					
-ASSOCIATED VIRUS (SAIYEA V)	1667-1703						
)	121-153						
)	462-493						
EAR POLYEDROSIS VIRUS (ACANPV)	4-38						
PSID POLYEDROSIS VIRUS (OPANPV)	4-38						
US (RDSV)	260-291						
IN AB4P) (E1IV-1)	239-268	287-325					
IN AD169)	141-172						
RAIN UGANDA-1102)	46-79	206-238					
IN AB4P) (EHV-1)	18-48						
IDUNA5) (VZV)	224-233						
EROTYPE 4 / STRAIN VACCINE)	408-441						
/ ISOLATE USA)	649-683						
/ ISOLATE USA)	558-586	649-683					
/ ISOLATE USA)	391-424	564-593					
ISOLATE AUSTRALIA)	654-688						
ISOLATE SOUTH AFRICA)	654-688						
VIRUS (SEROTYPE 1) (E1DV-1)	878-915						
)	334-367	522-553					
STRAIN WA)	334-367	523-558					
RAIN COWDEN)	342-377	532-567					
)	514-549	589-617	811-841				
)	335-368	523-558					
IGEN)	278-311						
)	278-311						

	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
0 / ISOLATE USA)	155-183	210-245					
DV)	25-61	223-357					
CAPSID POLYHEDROSIS VIRUS (OPKINPV)	285-313						
LEAR POLYHEDROSIS VIRUS (ACNIPV)	281-316						
R POLYHEDROSIS VIRUS (GMINPV)	198-223						
1 / ISOLATE USA)	155-181						
7 / ISOLATE USA)	155-181						
1 / ISOLATE SOUTH AFRICA)	159-187						
1 / ISOLATE USA)	131-159						
	180-209						
1) (WTV)	180-209						
LEAR POLYHEDROSIS VIRUS (ACNIPV)	403-442						
	454-490						
CAPSID POLYHEDROSIS VIRUS (OPKINPV)	77-112						
10 / ISOLATE USA)	104-139						
1 / ISOLATE USA)	104-139						
13 / ISOLATE USA)	104-139						
17 / ISOLATE USA)	104-139						
1 / ISOLATE AUSTRALIA)	104-139						
1 / ISOLATE SOUTH AFRICA)	104-139						
2 / ISOLATE USA)	104-139						
	374-412						
	164-195	379-412					
LEAR POLYHEDROSIS VIRUS (ACNIPV)	145-173						
CAPSID POLYHEDROSIS VIRUS (OPKINPV)	122-151						
US TYPE 1 (ARVUSF2 ISOLATE) (HIV-1)	37-74						
US TYPE 2 (ISOLATE: HCN) (HIV-2)	41-73						
US TYPE 2 (ISOLATE: CAN12) (HIV-2)	41-71						
US TYPE 2 (ISOLATE D194) (HIV-2)	41-73						
US TYPE 2 (ISOLATE D194) (HIV-2)	41-73						

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	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
	55-92						
	55-92						
/ STRAIN 1076)	55-92						
RAIN BRISTOL)	55-92						
/ STRAIN 52)	55-92						
/ STRAIN WA)	55-92	312-340					
TRAIN COWDEN	55-92	313-349					
(TRAJED)	55-92	313-349					
11)	55-92	313-349					
11)	274-302						
/ STRAIN ST. THOMAS 3)	131-159						
/ STRAIN BEN-144)	131-159						
V)	52-09						
	52-09						
	52-09						
CLONE 2)	52-09						
CLONE 6	52-09						
/ STRAIN WA)	52-09						
11)	52-09						
/ STRAIN WA)	99-130						
YES)	146-384						
	110-147						
ASZA) (SFV)	147-182						
NE)	261-290						
ASZA) (SFV)	210-249						
	116-150						
.8) (HUMAN HERPESVIRUS 4)	186-199	505-343					
AIN AD169)	176-209						
(NEL CATFISH VIRUS) (CCV)	736-788						
	57-91						
	55-83						
UCAN ISOLATE) (MSV)	24-54						
	22-59						

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TABLE XV
RESPIRATORY SYNCYTIAL VIRUS DP1
CARBOXY TRUNCAT

	X-YTS-Z
	X-YTSV-Z
5	X-YTSVI-Z
	X-YTSVIT-Z
	X-YTSVITI-Z
	X-YTSVITIE-Z
	X-YTSVITIEL-Z
	X-YTSVITIELS-Z
	X-YTSVITIELSN-Z
10	X-YTSVITIELSNI-Z
	X-YTSVITIELSNIK-Z
	X-YTSVITIELSNIKE-Z
	X-YTSVITIELSNIKEN-Z
	X-YTSVITIELSNIKENK-Z
	X-YTSVITIELSNIKENKC-Z
	X-YTSVITIELSNIKENKCN-Z
	X-YTSVITIELSNIKENKCNG-Z
15	X-YTSVITIELSNIKENKCNGT-Z
	X-YTSVITIELSNIKENKCNGTD-Z
	X-YTSVITIELSNIKENKCNGTDA-Z
	X-YTSVITIELSNIKENKCNGTDAK-Z
	X-YTSVITIELSNIKENKCNGTDAKV-Z
	X-YTSVITIELSNIKENKCNGTDAKVK-Z

Additionally,

"X" may represent an amino group including but not limited to butyloxycarbonyl; an acetyl carbonyl (Fmoc) group; a macro including but not limited to polyethylene glycol, or carbo 5

"Z" may represent a carboxyl group including but not limited to T-butyloxycarbonyl group; a macro including but not limited to polyethylene glycol, or carbo

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TABLE XV
RESPIRATORY SYNCYTIAL VIRUS F2 I
AMINO TRUNCA

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X-
X-I
X-LI
X-ELI
X-QELI
X-KQELI
X-IKQELI
X-LIKQELI
X-KLIKQELI
X-VKLIKQELI

"X" may represent an amino group including but not limited to T-butyloxycarbonyl; an acetyl fluorenylmethoxy-carbonyl (Fmoc) macromolecular carrier group; to lipid-fatty acid conjugates or carbohydrates.

5

"Z" may represent a carboxyl group including but not limited to T-butyloxycarbonyl group; a conjugates, polyethylene glycol

10

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TABLE XVII
RESPIRATORY SYNCYTIAL VIRUS F1
CARBOXY TRUNCAT

	X-FYD-Z
	X-FYDP-Z
	X-FYDPL-Z
5	X-FYDPLV-Z
	X-FYDPLVF-Z
	X-FYDPLVFP-Z
	X-FYDPLVFPS-Z
	X-FYDPLVFPSD-Z
	X-FYDPLVFPSDE-Z
	X-FYDPLVFPSDEF-Z
10	X-FYDPLVFPSDEFD-Z
	X-FYDPLVFPSDEFDA-Z
	X-FYDPLVFPSDEFDAS-Z
	X-FYDPLVFPSDEFDASI-Z
	X-FYDPLVFPSDEFDASIS-Z
	X-FYDPLVFPSDEFDASISQ-Z
	X-FYDPLVFPSDEFDASISQV-Z
	X-FYDPLVFPSDEFDASISQVN-Z
15	X-FYDPLVFPSDEFDASISQVNE-Z
	X-FYDPLVFPSDEFDASISQVNEK-Z
	X-FYDPLVFPSDEFDASISQVNEKI-Z
	X-FYDPLVFPSDEFDASISQVNEKIN-Z
	X-FYDPLVFPSDEFDASISQVNEKINQ-Z
	X-FYDPLVFPSDEFDASISQVNEKINQS-Z

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group including but not limit
conjugates, polyethylene glyc

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TABLE XVIII
RESPIRATORY SYNCYTIAL VIRUS F1
AMINO TRUNCATIC

	X-
	X-S
5	X-KS
	X-RKS
	X-IRKS
	X-FIRKS
	X-AFIRKS
	X-LAFIRKS
	X-SLAFIRKS
10	X-QSLAFIRKS
	X-NQSLAFIRKS
	X-INQSLAFIRKS
	X-KINQSLAFIRKS
	X-EKINQSLAFIRKS
	X-NEKINQSLAFIRKS
	X-VNEKINQSLAFIRKS
	X-QVNEKINQSLAFIRKS
15	X-SQVNEKINQSLAFIRKS
	X-ISQVNEKINQSLAFIRKS
	X-SISQVNEKINQSLAFIRKS
	X-ASISQVNEKINQSLAFIRKS
	X-DASISQVNEKINQSLAFIRKS
	V-EDACTSQVNEKINQSLAFIRKS

TABLE 2
HUMAN PARAINFLUENZA VIRUS 3
CARBOXY TRU

X-ITL-Z	
X-ITLN-Z	
X-ITLNN-Z	5
X-ITLNNSV-Z	
X-ITLNNVA-Z	
X-ITLNNVAT-Z	
X-ITLNNVAD-Z	
X-ITLNNVADPI-Z	
X-ITLNNSVADPID-Z	10
X-ITLNNSVADPIDSI-Z	
X-ITLNNSVADPIDISIE-Z	
X-ITLNNSVADPIDISIELN-Z	
X-ITLNNSVADPIDISIELNK-Z	15
X-ITLNNSVADPIDISIELNKAKS-Z	
X-ITLNNSVADPIDISIELNKAKSD-Z	
X-ITLNNSVADPIDISIELNKAKSDL-Z	
X-ITLNNSVADPIDISIELNKAKSDLE-	

X-I
 X-II
 X-WII
 X-EWII
 X-KEWII
 X-SKEWII
 X-ESKEWII
 X-EESKEWII
 X-LEESKEWII
 X-DLEESKEWII
 X-SDLEESKEWII
 X-KSDLEESKEWII
 X-AKSDLEESKEWII
 X-KAKSDLEESKEWII
 X-NKAKSDLEESKEWII
 X-LNKAKSDLEESKEWII
 X-ELNKAKSDLEESKEWII
 X-IELNKAKSDLEESKEWII
 X-SIELNKAKSDLEESKEWII
 X-ISIELNKAKSDLEESKEWII
 X-DISIELNKAKSDLEESKEWII
 X-IDISIELNKAKSDLEESKEWII
 X-PIDISIELNKAKSDLEESKEWII

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TABLE XX
 HUMAN PARAINFLUENZA VIRUS 3 FL
 AMINO TRUNCATIC

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TABLE
HUMAN PARAINFLUENZA VIRUS :
CARBOXY TRU

X-ALG-Z
X-ALGV-Z
X-ALGVA-Z
5 X-ALGVAT-Z
X-ALGVATS-Z
X-ALGVATSA-Z
X-ALGVATSAQ-Z
X-ALGVATSAQI-Z
X-ALGVATSAQIT-Z
X-ALGVATSAQITA-Z
10 X-ALGVATSAQITAA-Z
X-ALGVATSAQITAAV-Z
X-ALGVATSAQITAAVA-Z
X-ALGVATSAQITAVAL-Z
X-ALGVATSAQITAVALV-Z
X-ALGVATSAQITAVALVE-Z
X-ALGVATSAQITAVALVEA-Z
X-ALGVATSAQITAVALVEAK-Z
15 X-ALGVATSAQITAVALVEAKQ-Z
X-ALGVATSAQITAVALVEAKQA-Z
X-ALGVATSAQITAVALVEAKQAR-Z
X-ALGVATSAQITAVALVEAKQARS-Z
X-ALGVATSAQITAVALVEAKQARSD-
X-ALGVATSAQITAVALVEAKQARSDI

TABLE XXII
HUMAN PARAINFLUENZA VIRUS 3 FL
AMINO TRUNCAT]

X.

X-I

X-EI

X-KEI

X-LKEI

X-KLKEI

X-EKLKEI

X-IEKLKEI

X-DIEKLKEI

X-SDIEKLKEI

X-RSDIEKLKEI

X-ARSDIEKLKEI

X-QARSDIEKLKEI

X-KQARSDIEKLKEI

X-AKQARSDIEKLKEI

X-EAKQARSDIEKLKEI

X-VEAKQARSDIEKLKEI

X-LVEAKQARSDIEKLKEI

X-ALVEAKQARSDIEKLKEI

X-VALVEAKQARSDIEKLKEI

X-AVALVEAKQARSDIEKLKEI

X-AAVALVEAKQARSDIEKLKEI

X-TAVALVEAKQARSDIEKLKEI

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10

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TABLE X

REPRESENTATIVE DP107/DP178 P

Anti-Respiratory syncytial vi

	X-TSVITIELSNIKENKCN	GTDAKV	KL	IK
	X-SVITIELSNIKENKCN	GTDAKV	KL	IKQ
5	X-VITIELSNIKENKCN	GTDAKV	KL	IKQE
	X-VAVSKVLHLEGEVN	KIAL	STNK	AVVS
	X-AVSKVLHLEGEVN	KIAL	STNK	AVVSI
	X-VSKVLHLEGEVN	KIAL	STNK	AVVSLS
	X-SKVLHLEGEVN	KIAL	STNK	AVVSLSN
	X-KVLHLEGEVN	KIAL	STNK	AVVSLSNG
	X-LEGEVN	KIAL	STNK	AVVSLSNGVSVI
10	X-GEVN	KIAL	STNK	AVVSLSNGVSVLTS
	X-EVN	KIAL	STNK	AVVSLSNGVSVLTSK
	X-VN	KIAL	STNK	AVVSLSNGVSVLTSKV
	X-N	KIAL	STNK	AVVSLSNGVSVLTSKVI
	X-KIAL	STNK	AVVSLSNGVSVLTSKVLE	
	X-IAL	STNK	AVVSLSNGVSVLTSKVLDI	
	X-ALL	STNK	AVVSLSNGVSVLTSKVLDLH	
	X-VAVSKVLHLEGEVN	KIAL	STNK	AVVS
15	X-AVSKVLHLEGEVN	KIAL	STNK	AVVSI
	X-VSKVLHLEGEVN	KIAL	STNK	AVVSLS
	X-SKVLHLEGEVN	KIAL	STNK	AVVSLSN
	X-KVLHLEGEVN	KIAL	STNK	AVVSLSNG
	X-LEGEVN	KIAL	STNK	AVVSLSNGVSVI
	X-GEVN	KIAL	STNK	AVVSLSNGVSVLTS

X-AVALVEAKQARSDEKLEKFAIRDNTNKAQVQSSVSS-2
X-LVEAKQARSDEKLEKFAIRDNTNKAQVQSSVSSIGNL-2
X-VEAKQARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLI-2
X-EAKQARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLIV-2
X-AKQARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLIVA-2
X-KQARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLIVAI-2
X-QARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLIVAIK-2
X-ARSDEKLEKFAIRDNTNKAQVQSSVSSIGNLIVAIKS-2
X-RSDIEKLEKFAIRDNTNKAQVQSSVSSIGNLIVAIKSV-2
X-SDIEKLEKFAIRDNTNKAQVQSSVSSIGNLIVAIKSVQ-2
X-KIKEAIRDNTNKAQVQSSVSSIGNLIVAIKSVQDYVN-2
X-LKEAIRDNTNKAQVQSSVSSIGNLIVAIKSVQDYVNK-2
X-AIRDNTNKAQVQSSVSSIGNLIVAIKSVQDYVNKEIV-2

5

Anti-simian immunodeficiency virus peptides

X-WQWERKVDLEENITATLEEAQIQQEKMYELQK-2
X-QEWERKVDLEENITATLEEAQIQQEKMYELQKLN-2
X-EWERKVDLEENITATLEEAQIQQEKMYELQKLN-2
X-WERKVDLEENITATLEEAQIQQEKMYELQKLN-2
X-ERKVDLEENITATLEEAQIQQEKMYELQKLN-2
X-KVDLEENITATLEEAQIQQEKMYELQKLN-2
X-RKVDLEENITATLEEAQIQQEKMYELQKLN-2
X-KVDLEENITATLEEAQIQQEKMYELQKLN-2
X-VDFLEENITATLEEAQIQQEKMYELQKLN-2
X-DLEENITATLEEAQIQQEKMYELQKLN-2
X-FLEENITATLEEAQIQQEKMYELQKLN-2

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15

Anti-measles virus peptides

X-LHRIDLGPPISLERLDVGTNLGNAIAKLEAKELL-2
X-HRIDLGPPISLERLDVGTNLGNAIAKLEAKELLE-2
X-RIDLGPPISLERLDVGTNLGNAIAKLEAKELLES-2
X-IDLGPPISLERLDVGTNLGNAIAKLEAKELLESS-2
X-DLGPPISLERLDVGTNLGNAIAKLEAKELLESSD-2
X-LGPPISLERLDVGTNLGNAIAKLEAKELLESSDQ-2
X-GPPISLERLDVGTNLGNAIAKLEAKELLESSDQI-2
X-PPISLERLDVGTNLGNAIAKLEAKELLESSDQIL-2
X-PISLERLDVGTNLGNAIAKLEAKELLESSDQILR-2

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"Z" may represent a carboxyl group; an amide
T-butyloxycarbonyl group; a macromolecular
group including but not limited to lipid-fat
conjugates, polyethylene glycol, or carbohyd

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5.4. SYNTHESIS OF PEPTIDES

The peptides of the invention may be synthesized by techniques well known in the art or prepared by techniques well known in the art for example, Creighton, 1983, Proteins: Structure and Molecular Principles, W.H. Freeman and Co. which is incorporated herein by reference in its entirety. Short peptides, for example, can be synthesized on a solid support or in solution. Here, the nucleotide sequences encoding the peptides of the invention may be synthesized, and/or cloned and expressed according to techniques well known to those of ordinary skill in the art. See, for example, Sambrook, et al., 1989, Molecular Cloning, A Laboratory Manual, Vols. 1-3, Cold Spring Harbor Press, NY.

The peptides of the invention may alternatively be synthesized such that one or more of the bonds which link the amino acid residues of the peptide non-peptide bonds. These alternative non-peptide bonds may be formed by utilizing reactions well known to those in the art, and may include, but are not limited to imino, ester, hydrazide, semicarbazide, azo bonds, to name but a few. In yet another embodiment of the invention, peptides comprising

above.) Additionally, the hydrophobic group may be a butyloxycarbonyl, or an amido group may be attached to the peptides' carboxy termini. (See "Z" in Tables I to IV, above.)

5 Further, the peptides of the invention may be synthesized such that their steric configuration is altered. For example, the D-isomer of one of the amino acid residues of the peptide may be used rather than the usual L-isomer.

10 Still further, at least one of the amino acid residues of the peptides of the invention may be substituted by one of the well known non-naturally occurring amino acid residues. Alteration of these may serve to increase the stability, bioavailability and/or inhibitory action of the peptides of the invention.

15 Any of the peptides described above may additionally, have a macromolecular carrier covalently attached to their amino and/or carboxy termini. Such macromolecular carrier groups include, for example, lipid-fatty acid compounds, polyethylene glycol, carbohydrates or additional peptides. "X", in Tables I to IV, above, therefore additionally represent any of the macromolecular carrier groups covalently attached to the amino terminus of a peptide, with an amino group.

below, and assays for antiviral activity are described in Section 5.5.2, below.

5.5.1 ASSAYS FOR CELL FUSION EVENTS

Assays for cell fusion events are well known to those of skill in the art, and may be used in conjunction, for example, with the peptides of invention to test the peptides' antitumorigenic capabilities.

Cell fusion assays are generally performed *in vitro*. Such an assay may comprise culturing cells, in the absence of any treatment would not show an observable level of syncytial formation. For example, uninfected cells may be incubated in the presence of cells chronically infected with a virus that induces cell fusion. Such viruses may include, but are not limited to, HIV, SIV, or respiratory syncytial virus.

For the assay, cells are incubated in the presence of a peptide to be assayed. For each peptide, a range of peptide concentrations may be tested. This range should include a control wherein no peptide has been added.

Standard conditions for culturing cells, well known to those of ordinary skill in the art, are used. After incubation for an appropriate period (24

easily performed in vitro assays, such as those described below, which can test the peptides to inhibit syncytia formation, or their ability to inhibit infection by cell-free virus. Using such assays, such parameters as the relative anti-viral activity of the peptides, exhibit against a particular strain of virus and/or the strain specific activity of the peptide can be determined.

A cell fusion assay may be utilized to test the peptides' ability to inhibit viral-induced, HIV-induced, syncytia formation in vitro. Such an assay may comprise culturing uninfected cells in the presence of cells chronically infected with a syncytial-inducing virus and a peptide to be tested. For each peptide, a range of peptide concentrations may be tested. This range should include a control culture wherein no peptide has been added. Standard conditions for culturing, well known to those of ordinary skill in the art, are used. After incubation for an appropriate period (24 hours at 37 C, for example) the culture is examined microscopically for the presence of multinucleated giant cells, indicative of cell fusion and syncytia formation. Well known stains, such as crystal violet, may be used to facilitate syncytial visualization. For example, HIV as an example, such an assay would comprise

concentration (i.e., TCID₅₀) of virus and CD-4⁺ in the presence of the peptide to be tested. (conditions well known to those in the art are used, in addition to a control culture when in peptide has been added. After incubation for appropriate period (e.g., 7 days) of culturing, cell-free supernatant is prepared, using standard procedures, and tested for the presence of RT as a measure of successful infection. The RT may be tested using standard techniques such as described by, for example, Goff et al. (Goff, et al., 1981, J. Virol. 38:239-248) and/or Willey (Willey, R. et al., 1988, J. Virol. 62:139-147) These references are incorporated herein by reference in their entirety.

Standard methods which are well-known to those skill in the art may be utilized for assaying retroviral activity. See, for example, Pringle (Pringle, C.R. et al., 1985, J. Medical Virology 17:377-386) for a discussion of respiratory virus and parainfluenza virus activity assay techniques. Further, see, for example, "Zinnss Microbiology", 1988, Joklik, W.K. et al., eds. Appleton & Lange, Norwalk, CT, 19th ed., for a review of such techniques. These references are

Additionally, anti-RSV activity can be vivo via well known mouse models. For example can be administered intranasally to mice of inbred strains. Virus replicates in lungs of strains, but the highest titers are obtained C57L/N and DBA/2N mice. Infection of BALB/c produces an asymptomatic bronchiolitis characterized by lymphocytic infiltrates and pulmonary virus of 10^4 to 10^5 pfu/g of lung tissue (Taylor, (1984, Infect. Immun. 43:649-655).

Cotton rat models of RSV are also well. Virus replicates to high titer in the nose of the cotton rat but produces few if any signs of inflammation.

5.6. USES OF THE PEPTIDES OF THE INVENTION

The peptides of the invention may be used as antifusogenic or antiviral compounds, or as compounds which modulate intracellular processes involving coiled coil peptide structures. Further, specific peptides may be used to identify agents which are antifusogenic, antiviral or intracellular modulators of activity. Still further, the peptides of the invention may be utilized as organism or virus type/subtype-specific diagnostic tools.

The antifusogenic capability of the peptides of the invention may be determined by the following methods:

structure with a cell membrane. Among the intracellular disorders involving coiled coil structures which may be ameliorated by the peptide the invention are disorders involving, for example, bacterial toxins.

With respect to antiviral activity, the viruses whose transmission may be inhibited by the peptide are not limited to the strains of the viruses listed above, in Table I through VII, and IX through XIV.

These viruses include, for example, human retroviruses, particularly HIV-1 and HIV-2 and human T-lymphocyte viruses (HTLV-I and II). The human retroviruses whose transmission may be inhibited by the peptide of the invention include, but are not limited to bovine leukosis virus, feline sarcoma virus, simian immunodeficiency virus, and sheep progress pneumonia virus.

Non retroviral viruses whose transmission is inhibited by the peptide of the invention include but are not limited to human respiratory syncytial virus, canine distemper virus, Newcastle disease virus, human parainfluenza virus, influenza virus, measles viruses, Epstein-Barr viruses, hepatitis viruses, and simian Mason-Pfizer viruses.

are required for normal activity of the virus; the peptides of the invention may also be used as components in assays for the identification of compounds that interfere with such protein-protein interactions and may, therefore, act as anti-viral agents. These assays are discussed, below, in Section 5.5.1.

As demonstrated in the Example presented in Section 6, the antiviral activity of the peptides of the invention may show a pronounced type and specificity, i.e., specific peptides may be used in inhibiting the activity of only specific viruses. This feature of the invention presents many advantages. One such advantage, for example, in the field of diagnostics, wherein one can use the antiviral specificity of the peptide of the invention to ascertain the identity of a viral isolate. For example, with respect to HIV, one may easily determine whether a viral isolate consists of an HIV-1 or HIV-2 virus. For example, uninfected CD-4⁺ cells may be contacted with an isolate which has been identified as containing HIV the DP178 (SEQ ID:1) peptide, and the retroviral activity of cell supernatants may be assayed, using, for example, the technique described above in Section 5.2. Those isolates which show retroviral activity is completely or nearly

peptide sequence is found. A diagnostic proced described, above, for DP178, may be used in conjunction with the DP107/DP178 analog of inte

5.5.1. SCREENING ASSAYS

As demonstrated in the Example presented i Section 8, below, DP107 and DP178 portions of t protein gp41 form non-covalent protein-protein interactions. As is also demonstrated, th

maintenance of such interactions is necessary f normal viral infectivity. Thus, compounds whic DP107, bind DP178, and/or act to disrupt normal DP107/DP178 protein-protein interactions may ac anti-fusogenic, antiviral or cellular modulatory agents. Described below are assays for the

identification of such compounds. Note that, w for ease and clarity of discussion, DP107 and D peptides will be used as components of the assa described, but it is to be understood that any DP107 analog or DP178 analog peptides described above, in Sections 5.1 through 5.3 may also be

utilized as part of these screens for compounds which may be tested for an abili bind DP107, DP178, and/or disrupt DP107/DP178 interactions, and which therefore, potentially represent anti-fusogenic, antiviral or intracell

potentially effective materials may be screened by a variety of ways, as described in this Section.

5 The compounds, antibodies, or other materials not yet identified may be tested, for example, for their ability to inhibit cell fusion or viral activity, using, for example, assays such as those described in Section 5.5.

10 Among the peptides which may be tested are soluble peptides comprising DP107 and/or DF domains, and peptides comprising DP107 and/or DF domains having one or more mutations within both of the domains, such as the M41-P peptide described, below, in the Example presented in Figure 8, which contains a isoleucine to proline mutation within the DP178 sequence.

15 In one embodiment of such screening method, the method for identifying a compound to be tested for its antiviral ability comprising:

20 (a) exposing at least one compound to a DP107 peptide comprising a DP107 peptide for a time sufficient to allow binding of the compound to the DP107 peptide;

(b) removing non-bound compounds;

25 (c) determining the presence of the compound bound to the DP107 peptide, thereby identifying an agent to be tested for its antiviral activity.

(c) determining the presence of the compound bound to the DP178 peptide, thereby identifying an agent to be tested for antiviral ability.

One method utilizing these types of approach

that may be pursued in the isolation of such D

binding or DP178-binding compounds is an assay

would include the attachment of either the DP1

the DP178 peptide to a solid matrix, such as,

example, agarose or plastic beads, microtiter

wells, petri dishes, or membranes composed of,

example, nylon or nitrocellulose. In such an

system, either the DP107 or DP178 protein may

anchored onto a solid surface, and the compound

test substance, which is not anchored, is label

either directly or indirectly. In practice,

microtiter plates are conveniently utilized.

anchored component may be immobilized by non-co

or covalent attachments. Non-covalent attachm

be accomplished simply by coating the solid su

with a solution of the protein and drying.

Alternatively, an immobilized antibody,

preferably a monoclonal antibody, specific for

protein may be used to anchor the protein to t

surface. The surfac s may be prepared in adva

stored.

complexes were formed. Where the labeled compound is not pre-labeled, an indirect label can be used to detect complexes anchored on the surface; e.g., a labeled antibody specific for the compound or antibody, in turn, may be directly labeled or indirectly labeled with a labeled anti-Ig antibody.

Alternatively, such an assay can be conducted in a liquid phase, the reaction products separated, unreacted components, and complexes detected using an immobilized antibody specific for DP107 or DP178, whichever is appropriate for the given compound or antibody specific for the compound, in order to anchor any complex formed in solution, and a labeled antibody for the other member of the complex to detect complexes.

By utilizing procedures such as this, large numbers of types of molecules may be simultaneously screened for DP107 or DP178-binding capability, thus potential antiviral activity.

Further, compounds may be screened for their ability to inhibit the formation of or, alternatively, DP107/DP178 complexes. Such compounds may be tested for antifusogenic, antiviral or immunomodulatory capability. For ease of description, DP107 and DP178 will be referred to as "binding partners".

In order to test a compound for disruptiv acti the reaction is conducted in the presence and a of the test compound, i.e., the test compound m initially included in the reaction mixture, or at a time subsequent to the addition of one of binding partners; controls are incubated withou test compound or with a placebo. The formation complexes between the binding partners is then detected. The formation of a complex in the co reaction, but not in the reaction mixture conta the test compound indicates that the compound interferes with the interaction of the DP107 an peptides.

The assay for compounds that interfere wit interaction of the binding partners can be cond in a heterogeneous or homogeneous format.

Heterogeneous assays involve anchoring one of t binding partners onto a solid phase and detecti complexes anchored on the solid phase at the en the reaction. In homogeneous assays, the entir reaction is carried out in a liquid phase. In approach, the order of addition of reactants ca varied to obtain different information about th compounds being tested. For example, test comp that interfere with the interaction between the binding partners, e.g., by competition, can be

been formed. The various formats are described briefly below.

In a heterogeneous assay system, one binding partner, e.g., either the DP107 or DP178 protein is anchored onto a solid surface, and its binding partner, which is not anchored, is labeled, directly or indirectly. In practice, microtiter plates are conveniently utilized. The anchoring species may be immobilized by non-covalent attachments. Non-covalent attachment may be accomplished simply by coating the solid surface with a solution of the protein and drying. Alternatively, an immobilized antibody specific for the protein may be used to anchor the protein to the solid surface. The surfaces may be prepared in advance and stored.

In order to conduct the assay, the binding partner of the immobilized species is added to the coated surface with or without the test compound. After the reaction is complete, unreacted binding partners are removed (e.g., by washing) and any complexes formed will remain immobilized on the solid surface. The detection of complexes anchored on the surface can be accomplished in a number of ways. Where the binding partner was pre-labeled, detection of label immobilized on the surface indicates that complexes were formed. Where the test compound is labeled, detection of label indicates that complexes were formed.

Alternatively, the reaction can be conducted in the liquid phase in the presence or absence of the compound, the reaction products separated from unreacted components, and complexes detected; using an immobilized antibody specific for one partner to anchor any complexes formed in solution and a labeled antibody specific for the other partner to detect anchored complexes. Again, depending upon the order of addition of reactants in the liquid phase, test compounds which inhibit or which disrupt preformed complexes can be identified.

In an alternate embodiment of the invention a homogeneous assay can be used. In this approach preformed complex of the DP107 and DP178 peptide prepared in which one of the binding partners is labeled, but the signal generated by the label quenched due to complex formation (see, e.g., Patent No. 4,109,496 by Rubenstein which utilizes approach for immunoassays). The addition of a substance that competes with and displaces one binding partners from the preformed complex will result in the generation of a signal above background. In this way, test substances which disrupt DP-178 protein-protein interaction can be identified. In an alternative screening assay, test compounds

compounds for the disruption of the complex by these two peptides by immunometrically v. DP178/M41Δ178 complexes via the human recom Fab-d, as described, below, in the Example in Section 8. M41Δ178 is a maltose binding
 5 protein containing a gp41 region having its domain deleted, and is described, below, in Example presented in Section 8.

Utilizing such an assay, M41Δ178 may be immobilized onto solid supports such as mic
 10 wells. A series of dilutions of a test compound then be added to each M41Δ178-containing well in the presence of a constant concentration of DP-peptide. After incubation, at, for example, room temperature for one hour, unbound DP-178 and
 15 compound are removed from the wells and wells are incubated with the DP178/M41Δ178-specific Fab-d antibody. After incubation and washing, unbound Fab-d is removed from the plates and bound Fab-d is quantitated. A no-inhibitor control should
 20 be conducted. Test compounds showing an ability to disrupt DP178/M41Δ178 complex formation are identified by their concentration-dependent decrease in Fab-d binding.

A variation of such an assay may be used to
 25 perform a rapid, high-throughput binding assay.

binding to M41Δ178 is then quantitated by measuring the fraction of DP178 that is bound as ¹²⁵I-DP1. calculating the total amount bound using a value specific activity (dpm/μg peptide) determined labeled DP178 preparation. Specific binding to M41Δ178 is defined as the difference of the binding of the labeled DP178 preparation in the microtiter (totals) and the binding in identical wells containing, in addition, excess unlabeled DP17 (nonspecifics).

5.5 PHARMACEUTICAL FORMULATIONS, DOSAGE AND MODES OF ADMINISTRATION

The peptides of the invention may be administered using techniques well known to those in the art. Preferably, agents are formulated and administered systemically. Techniques for formulation and administration may be found in "Remington's Pharmaceutical Sciences", 18th ed., 1990, Mack Publishing Co., Easton, PA. Suitable routes include oral, rectal, transmucosal, or intramuscular, subcutaneous, intramedullary injections, as well as, intrathecal, direct intraventricular, intravenous, intraperitoneal, intranasal, or intraocular injections, just to

illustrate, for injection the agents of the invention.

agents is preferred, techniques well known ordinary skill in the art may be utilized. example, such agents may be encapsulated in liposomes, then administered as described a
 5 Liposomes are spherical lipid bilayers with interiors. All molecules present in an aqueous solution at the time of liposome formation incorporated into the aqueous interior. The contents are both protected from the external microenvironment and, because liposomes fuse
 10 membranes, are effectively delivered into the cytoplasm. Additionally, due to their hydrophobicity, when small molecules are to be administered intracellular administration may be achieved.

Nucleotide sequences encoding the peptide invention which are to be intracellularly expressed may be expressed in cells of interest, using techniques well known to those of skill in the art. For example, expression vectors derived from such as retroviruses, vaccinia viruses, adenovirus associated viruses, herpes viruses, or bovine papilloma viruses, may be used for delivery and expression of such nucleotide sequences into a targeted cell population. Methods for the construction of such vectors and expression are well known. See, for example, Sambrook

to an HIV virus. Examples of such prophylactic the peptides may include, but are not limited to prevention of virus transmission from mother to and other settings where the likelihood of HIV transmission exists, such as, for example, acci in health care settings wherein workers are exp HIV-containing blood products. The successful such treatments do not rely upon the generation host immune response directed against such pept Effective dosages of the peptides of the invention to be administered may be determined procedures well known to those in the art which address such parameters as biological half-life bioavailability, and toxicity. Given the data presented below in Section 6, DP178, for example prove efficacious in vivo at doses required to circulating levels of about 1 to about 10 ng peptide.

A therapeutically effective dose refers to amount of the compound sufficient to result in amelioration of symptoms or a prolongation of survival in a patient. Toxicity and therapeutic efficacy such compounds can be determined by standard pharmaceutical procedures in cell cultures or experimental animals, e.g., for determining the (the dose lethal to 50% of the population) and

little or no toxicity. The dosage may vary
 this range depending upon the dosage form and
 the route of administration utilized. For
 compound used in the method of the invention
 therapeutically effective dose can be estimated
 5 initially from cell culture assays. A dose
 formulated in animal models to achieve a critical
 plasma concentration range that includes the
 (e.g., the concentration of the test compound
 achieves a half-maximal inhibition of the
 10 event, such as a half-maximal inhibition of
 infection relative to the amount of the event
 in the absence of the test compound) as determined
 in cell culture. Such information can be used to more
 accurately determine useful doses in humans
 15 in plasma may be measured, for example, by
 performance liquid chromatography (HPLC).

The peptides of the invention may, for example,
 serve the role of a prophylactic vaccine, wherein
 the peptides raise antibodies against the peptides of the
 20 invention, which then serve to neutralize HIV
 by, for example, inhibiting further HIV infection.

Administration of the peptides of the invention
 as a prophylactic vaccine, therefore, would involve
 administering to a host a concentration of the
 25 peptides effective in raising an immune response which
 is sufficient to neutralize HIV by, for example,

response. Such adjuvants may include, but are limited to mineral gels such as aluminum hydroxide; surface active substances such as lysolecithin, pluronic polyols, polyanions; other peptides; emulsions; and potentially useful human adjuvants such as BCG and Corynebacterium parvum. Many of these may be used to introduce the vaccine formulations described here. These methods include but are limited to oral, intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, and intranasal routes.

Alternatively, an effective concentration of polyclonal or monoclonal antibodies raised against the peptides of the invention may be administered to a host so that no uninfected cells become infected with HIV. The exact concentration of such antibodies may vary according to each specific antibody preparation but may be determined using standard techniques known to those of ordinary skill in the art. Administration of the antibodies may be accomplished using a variety of techniques, including, but not limited to those described in this section.

For all such treatments described above, the exact formulation, route of administration and dosage can be chosen by the individual physician in view of the patient's condition. (See e.g. Fingl et al., 1977, *Quantitative Clinical Pharmacology*, 2nd ed., Lea & Febiger, Philadelphia, PA, 1977, pp. 1-2).

will vary with the severity of the condition treated and the route of administration. Perhaps dose frequency, will also vary according to the age, body weight, and response of the patient. A program comparable to that disclosed may be used in veterinary medicine.

Use of pharmaceutically acceptable carriers to formulate the compounds herein disclosed for practice of the invention into dosages suitable for systemic administration is within the scope of the invention. With proper choice of carrier and manufacturing practice, the compositions of the present invention, in particular, those for oral solutions, may be administered parenterally by intravenous injection. The compounds can be formulated readily using pharmaceutically acceptable carriers well known in the art into dosages suitable for oral administration. Such carriers enable the compounds of the invention to be formulated into tablets, pills, capsules, liquids, gels, syrups, slurries, suspensions and the like, for oral ingestion by a patient to be treated.

Pharmaceutical compositions suitable for the present invention include compositions in which the active ingredients are contained in an effective amount to achieve its intended purpose. Doses

for oral administration may be in the form of dragees, capsules, or solutions.

5 The pharmaceutical compositions of the invention may be manufactured in a manner that itself known, e.g., by means of conventional m
dissolving, granulating, dragee-making, leviga
emulsifying, encapsulating, entrapping or lyop
processes.

10 Pharmaceutical formulations for parentera
administration include aqueous solutions of th
compounds in water-soluble form. Additionally
suspensions of the active compounds may be pre
appropriate oily injection suspensions. Suita
lipophilic solvents or vehicles include fatty
such as sesame oil, or synthetic fatty acid es
15 such as ethyl oleate or triglycerides, or lipc
Aqueous injection suspensions may contain subs
which increase the viscosity of the suspension
as sodium carboxymethyl cellulose, sorbitol, c
dextran. Optionally, the suspension may also
20 suitable stabilizers or agents which increase
solubility of the compounds to allow for the
preparation of highly concentrated solutions.

25 Pharmaceutical preparations for oral use
obtained by combining the active compounds wit
excipient, optionally grinding a resulting mix

added, such as the cross-linked polyvinyl p
agar, or alginic acid or a salt thereof suc
alginate.

Dragee cores are provided with suitabl
For this purpose, concentrated sugar soluti
5 used, which may optionally contain gum arab
polyvinyl pyrrolidone, carbopol gel, polyet
glycol, and/or titanium dioxide, lacquer so
and suitable organic solvents or solvent mi
Dyestuffs or pigments may be added to the t
10 dragee coatings for identification or to ch
different combinations of active compound d

Pharmaceutical preparations which can
orally include push-fit capsules made of ge
well as soft, sealed capsules made of gelat
15 plasticizer, such as glycerol or sorbitol.
push-fit capsules can contain the active ir
in admixture with filler such as lactose, h
as starches, and/or lubricants such as talc
magnesium stearate and, optionally, stabili
20 soft capsules, the active compounds may be
or suspended in suitable liquids, such as f
liquid paraffin, or liquid polyethylen gly
addition, stabilizers may be added.

25

6. EXAMPLE: DP178 (SEQ ID:1) IS A I
INHIBITOR OF HIV-1 INFECTION

is highly specific for HIV-1. Additionally, a synthetic peptide, DP-185 (SEQ ID:3), representing HIV-1-derived DP178 homolog is also found to block HIV-1-mediated syncytia formation.

5

6.1. MATERIALS AND METHODS

6.1.1. PEPTIDE SYNTHESIS

Peptides were synthesized using Fast Moc chemistry on an Applied Biosystems Model 431A synthesizer. Generally, unless otherwise noted, peptides contained amidated carboxy termini and acetylated amino termini. Amidated peptides were prepared using Rink resin (Advanced Chemtech) and peptides containing free carboxy termini were synthesized on Wang (p-alkoxy-benzyl-alcohol) resin (Bachem). First residues were double coupled to appropriate resin and subsequent residues were coupled. Each coupling step was followed by an anhydride capping. Peptides were cleaved from resin by treatment with trifluoroacetic acid (TFA) (10ml), H₂O (0.5ml), thioanisole (0.5ml), ethanol (0.25ml), and crystalline phenol (0.75g). Purification was carried out by reverse phase HPLC. Approximately 50mg samples of crude peptide were chromatographed on a Waters Delta Pak C18 column

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6.1.2. VIRUS

The HIV-1_{LA1} virus was obtained from R. (Popovic, M. et al., 1984, Science 224:497 propagated in CEM cells cultured in RPMI 1
5 containing 10% fetal calf serum. Supernat infected CEM cells was passed through a 0. and the infectious titer estimated in a microinfectivity assay using the AA5 cell support virus replication. For this purpo
10 serial diluted virus was added to 75 μ l AA5 concentration of 2×10^5 /ml in a 96-well m: plate. Each virus dilution was tested in Cells were cultured for eight days by addi
15 fresh medium every other day. On day 8 po infection, supernatant samples were tested replication as evidenced by reverse transc activity released to the supernatant. The calculated according to the Reed and Muenc
20 (Reed, L.J. et al., 1938, Am. J. Hyg. 27:4 The titer of the HIV-1_{LA1} and HIV-1_{MN} stocks: these studies, as measured on the AA5 cell approximately 1.4×10^6 and 3.8×10^4 TCID₅₀ resp ctively.

6.1.3. CELL FUSION ASSAY

25 Approximately 7×10^4 Molt cells were

at a 40x magnification which allowed visualizat
the entire well in a single field.

6.1.4. CELL FREE VIRUS INFECTION ASSAY

5 Synthetic peptides were incubated at 37 C
either 247 TCID₅₀ (for experiment depicted in FI
or 62 TCID₅₀ (for experiment depicted in FIG.3)
of HIV-1_{LAI} virus or 25 TCID₅₀ units of HIV-2_{NIH2} a
CD4⁺ cells at peptide concentrations of 0, 0.04
10 4.0, and 40µg/ml for 7 days. The resulting rev
transcriptase (RT) activity in counts per minut
determined using the assay described, below, in
Section 6.1.5. See, Reed, L.J. et al., 1938, A
Hyg. 27: 493-497 for an explanation of TCID₅₀
calculations.

15

6.1.5. REVERSE TRANSCRIPTASE ASSAY

The micro-reverse transcriptase (RT) assay
adapted from Goff et al. (Goff, S. et al., 1981
20 Virol. 38:239-248) and Willey et al. (Willey, R
al., 1988, J. Virol. 62:139-147). Supernatants
virus/cell cultures are adjusted to 1% Triton-X
10µl sample of supernatant was added to 50µl of
cocktail in a 96-well U-bottom microtitre plate
the samples incubated at 37 C for 90 min. The
25 cocktail contained 75mM KCl, 2mM dithiothreitol

paper, with partial vacuum applied. Each minifold was washed four times with 200 μ l 2 full vacuum. The membrane was removed from minifold and washed 2 more times in a pyr x an excess of 2xSSC. Finally, the membrane
5 on absorbent paper, placed on Whatman #3 pa covered with Saran wrap, and exposed to fil at -70°C.

6.2. RESULTS

10 6.2.1. PEPTIDE INHIBITION OF INFECTION INDUCED SYNCYTIA FORMATION

The initial screen for antiviral activity of peptides' ability to block syncytium formation by overnight co-cultivation of uninfected M
15 with chronically HIV-1 infected CEM cells. The results of several such experiments are presented herein. In the first of these experiments, DP178 (SEQ ID:1) peptide concentrations between 10 μ g/ml and 12.5ng/ml were tested for block
20 cell fusion process. For these experiments, chronically infected with either HIV-1_{LAI}, HIV-1_{RF}, or HIV-1_{SF2} virus were cocultivated over uninfected Molt 4 cells. The results (FIG 1) show that DP178 (SEQ ID:1) afforded complete protection
25 against each of the HIV-1 isolates down to a concentration of DP178 (SEQ ID:1) used. For

ID:1) is primary sequence-specific and not related to non-specific peptide/protein interactions. The endpoint (*i.e.*, the lowest effective inhibitor concentration) of DP178 inhibitory action is within the range of 1-10 ng/ml.

5 The next series of experiments involved the preparation and testing of a DP178 (SEQ ID:1) for its ability to inhibit HIV-1-induced syncytium formation. As shown in FIG. 1, the sequence of (SEQ ID:3) is slightly different from DP178 (SEQ ID:1) in that its primary sequence is taken from the isolate and contains several amino acid differences relative to DP178 (SEQ ID:1) near the N terminus shown in FIG. 4. DP-185 (SEQ ID:3), exhibits inhibitory activity even at 312.5ng/ml, the lowest concentration tested.

10

15

 The next series of experiments involved a comparison of DP178 (SEQ ID:1) HIV-1 and HIV-2 inhibitory activity. As shown in FIG. 5, DP178 (SEQ ID:1) blocked HIV-1-mediated syncytium formation at peptide concentrations below 1ng/ml. DP178 (SEQ ID:1) failed, however, to block HIV-2 mediated syncytium formation at concentrations as high as 10µg/ml, demonstrating a striking 4 log selectivity of DP178 (SEQ ID:1) as an inhibitor of HIV-1-mediated cell fusion demonstrates an unexpected HIV-1 specificity in the action

20

25

6.2.2. PEPTIDE INHIBITION OF INFECT CELL-FREE VIRUS

DP178 (SEQ ID:1) was next tested for its ability to block CD-4⁺ CEM cell infection by cell free virus. The results, shown in FIG. 2, are from an experiment in which DP178 (SEQ ID:1) was assayed for its ability to block infection of CEM cells with an HIV-1_{LAI} isolate. Included in the experiment were three control peptides, DP-116 (SEQ ID:9), DP-117 (SEQ ID:8), and DP-118 (SEQ ID:10). DP-116 (SEQ ID:9) represents a peptide previously shown to be active using this assay, and DP-125 (SEQ ID:8; Wil et al., 1992, Proc. Natl. Acad. Sci. USA 89:10345-10349) and DP-118 (SEQ ID:10) are peptides which have been shown to be active in this assay. Each concentration (0, 0.04, 0.4, 4, and 40 µg/ml) of peptide was incubated with 247 TCID₅₀ units of virus and CEM cells. After 7 days of culture, the supernatant was tested for the presence of virus activity as a measure of successful infection. The results, shown in FIG. 2, demonstrate that DP178 (SEQ ID:1) inhibited the de novo infection process by the HIV-1 viral isolate at a concentration of 90 ng/ml (IC₅₀=90 ng/ml). In contrast, the three control peptides, DP-125 (SEQ ID:8) and DP-118 (SEQ ID:10), had over 60-fold higher IC₅₀ concentrations, approximately 5 µg/ml.

In a separate experiment, the HIV-1 inhibitory action of DP178 (SEQ ID:1) was tested against CEM cells and either HIV-1 or HIV-2.

as a HIV-1 inhibitor than a HIV-2 inhibitor. This finding is consistent with the results of the inhibition assays described, above, in Section 6 and further supports a significant level of selectivity (i.e., for HIV-1 over HIV-2).

5

7. EXAMPLE: THE HIV-1 INHIBITOR, DP178 (SEQ ID:1) IS NON-CYTOTOXIC

In this Example, the 36 amino acid synthetic peptide inhibitor DP178 (SEQ ID:1) is shown to be non-cytotoxic to cells in culture, even at the highest peptide concentrations (40 μ g/ml) tested.

7.1. MATERIALS AND METHODS

Cell proliferation and toxicity assay:

Approximately 3.8×10^5 CEM cells for each peptide concentration were incubated for 3 days at 37 $^{\circ}$ C in 96 well flasks. Peptides tested were DP178 (SEQ ID:1) and 116 (SEQ ID:9), as described in FIG. 1. Peptides were synthesized as described, above, in Section 6. concentrations of each peptide used were 0, 2.5, and 40 μ g/ml. Cell counts were taken at incubation times of 0, 24, 48, and 72 hours.

7.2. RESULTS

Whether the potent HIV-1 inhibitor DP178 (SEQ ID:1) exhibited any cytotoxic effects was assessed by measuring cell proliferation and toxicity.

The results of the cytotoxicity study that DP178 (SEQ ID:1) exhibits no cytotoxic cells in culture. As can be seen, below, in XXIV, even the proliferation and viability characteristics of cells cultured for 3 day
5 presence of the highest concentration of DP ID:1) tested (40 μ g/ml) do not significantly from the DP-116 (SEQ ID:9) or the no-p ptic The cell proliferation data is also represented
10 graphic form in FIG. 6. As was demonstrated Working Example presented above in Section (SEQ ID:1) completely inhibits HIV-1 mediated
formation at peptide concentrations between 10ng/ml, and completely inhibits cell-free
infection at concentrations of at least 90
15 Thus, this study demonstrates that even at concentrations greater than 3 log higher than inhibitory dose, DP178 (SEQ ID:1) exhibits cytotoxic effects.

20

25

TABLE XXIV

		% Viability at time (hour)			
5	<u>Peptide</u>	<u>Peptide Concentration μg/ml</u>			
			<u>0</u>	<u>24</u>	<u>48</u>
10	DP178 (SEQ ID:1)	40	98	97	95
		10	98	97	98
		2.5	98	93	96
15	DP116 (SEQ ID:9)	40	98	95	98
		10	98	95	93
		2.5	98	96	98
20	No Peptide	0	98	97	99

8. EXAMPLE: THE INTERACTION OF DP178 AND

Soluble recombinant forms of gp41 used in
25 example described below provide evidence that
DP178 peptide associates with a distal site on

due to their ability to form complexes with and interfere with its fusogenic process.

8.1. MATERIALS AND METHODS

5

8.1.1. CONSTRUCTION OF FUSION PE AND GP41 MUTANTS

Construction of fusion proteins and mutants in FIG. 7 was accomplished as follows: the sequence corresponding to the extracellular gp41 (540-686) was cloned into the Xmn I site of expression vector pMal-p2 (New England Biolabs M41. The gp41 sequence was amplified from (Malim et al., 1988, Nature 355: 181-183) by polymerase chain reaction (PCR) with upstream primer 5'-ATGACGCTGACGGTACAGGCC-3' (primer A) and primer 5'-TGACTAAGCTTAATACCACAGCCAATTTGTTA-3' (primer B). M41-P was constructed by using the T7-in vitro mutagenesis kit from United States Biochemicals (USB) following the supplier's instructions. The mutagenic primer (5'-GGAGCTGCTTGGGGCCCCAGAC-3') introduces an I¹ mutation in M41 at position 578. M41Δ107, the DP-107 region has been deleted, was made using a deletion mutagenic primer 5'-CCAAATCCCCAGGAGCTGCTCGAGCTGCACTATACCAGAC-3' following the USB T7-Gen mutagenesis protocol.

were checked by restriction enzyme analysis and confirmed by DNA sequencing.

8.1.2. PURIFICATION AND CHARACTERIZATION OF FUSION PROTEINS

5 The fusion proteins were purified according to the protocol described in the manufacturer's kit of protein fusion and purification systems from England Biolabs (NEB). Fusion proteins (10 ng) were analyzed by electrophoresis on 8% SDS polyacrylamide gels. Western blotting analysis was performed as described by Sambrook et al., 1989, Molecular Cloning: A Laboratory Manual, 2d Ed, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, Ch. 10, pp. 64-75. An HIV-1 positive serum diluted 1000 times or a human Fab derived from repertoire cloning was used to react with the fusion proteins. The secondary antibody was HRP-conjugated goat antihuman Fab. ECL Western blotting detection system (Amersham) was used to detect the bound antibody. A detailed protocol for this detection system was provided by the manufacturer. Rainbow molecular weight markers (Amersham) were used to estimate the size of the fusion proteins.

25 8.1.3. CELL FUSION ASSAYS FOR ANTI-HIV AC
Cell fusion assays were performed as previously described.

not show cytotoxicity at the concentrations shown in FIG. 8.

Inhibition of HIV-1 induced cell-cell activity was carried out in the presence of DP178 and various concentrations of M41Δ178 PA178 as indicated in FIG. 9. There was no syncytia in the presence of 10 nM DP178. No fusion protein was added in the control

8.1.4. ELISA ANALYSIS OF DP178 I
TO THE LEUCINE ZIPPER MO

The amino acid sequence of DP178 used YTSLIHSLIEESQNQQEKNEQELLELDKWASLWNWF. For linked immunoassay (ELISA), M41Δ178 or M41-μg/ml) in 0.1M NaHCO₃, pH 8.6, were coated Linbro ELISA plates (Flow Lab, Inc.) overnight. The well was washed three times with distilled water and blocked with 3% bovine serum albumin (BSA) for 2 hours. After blocking, peptides with 0.5% (40 mM Tris-HCl pH7.5, 150 mM NaCl, 0.05%) were added to the ELISA plates and incubated at room temperature for 1 hour. After washing three times with TBST, Fab-d was added at a concentration of 100 ng/ml with 0.5% BSA in TBST. The plates were washed three times with TBST after incubation at room temperature for 1 hour. Horse radish peroxidase conjugated goat antihuman Fab antiserum at

(Molecular Design) at 490 nm. Results are shown in FIG. 10.

8.2. RESULTS

8.2.1. THE EXPRESSION AND CHARACTERIZATION OF THE ECTODOMAIN OF gp41

As a step toward understanding the roles of the two helical regions in gp41 structure and function, the ectodomain of gp41 was expressed as a maltose binding fusion protein (M41) (FIG. 7). The fusion peptide sequence at the N-terminal of gp41 was derived from this recombinant protein and its derivatives to improve solubility. The maltose binding protein facilitated purification of the fusion protein under relatively mild, non-denaturing conditions. Because the M41 soluble recombinant gp41 was not glycosylated, lacked several regions of the transmembrane protein (i.e., the fusion peptide, the membrane spanning region, and the cytoplasmic domains), and was expressed in the absence of gp120, it was not expected to precisely reflect the structure of native gp41 on HIV-1. Nevertheless, purified M41 folded in a manner that preserved certain discontinuous epitopes as evidenced by reactivity with human monoclonal antibodies, 126-6, and 50-69, previously shown to bind conformational epitopes on native gp41 expressed on HIV-1 cells (Vaccines, 1991, 1, 1-10).

eliminated reactivity with Fab-d. These results indicate that both helical regions, separately, contain amino acids in the primary sequence, are required to maintain the Fab-d epitope.

5

8.2.2. ANTI-HIV ACTIVITY OF THE RECOMBINANT ECTODOMAIN OF

The wild type M41 fusion protein was tested for anti-HIV-1 activity. As explained, supra,
10 peptides corresponding to the leucine zipper
and the C-terminal putative helix (DP178) were tested for
anti-HIV activity. Despite inclusion of both regions, the recombinant M41 protein did not
HIV-1 induced membrane fusion at concentrations
15 high as 50 μ M (Table XXV, below).

TABLE XXV

**DISRUPTION OF THE LEUCINE ZIPPER
GP41 FREES THE ANTI-HIV MOTIF**

20

	<u>DP107</u>	<u>DP178</u>	<u>M41</u>	<u>M41-P</u>
Cell fusion (IC ₅₀)	1 μ M	1 nM	> 50 μ M	83 nM
Fab-D binding (K _D)	-	-	3.5x10 ⁻⁹	2.5x10 ⁻⁹
HIV infectiv-				

25

concentration of purified recombinant fusion protein in RPMI 1640 fetal bovine serum and antibiotics in a 96-well microtiter plate. CEM4 cells at 6×10^5 cells/ml were added to each well, and culture incubated at 37°C in a humidified CO₂ incubator. Cells were cultured by the addition of fresh medium every 2 to 3 days. On days postinfection, supernatant samples were assayed for reverse transcriptase activity, as described below, to monitor viral replication. The 50% culture infectious dose (TCID₅₀) was calculated for each condition to the formula of Reed & Muench, 1937, Am. J. Hyg. 27:493-499. Activity was determined by a modification of the published method of Willey et al., 1981, J. Virol. 38:239-248 and Willey et al., 1988, J. Virol. 62:1086, as described in Chen et al., 1993, AIDS Res. Human Retroviruses 9:1086.

10

Surprisingly, a single amino acid substitution of proline in place of isoleucine in the middle of the leucine zipper motif, yielded a fusion protein which did exhibit antiviral activity (Table XXV, Fig. 8). As seen in Table XXV, M41-P blocked infection by 90% at approximately 85 nM and neutralized HIV-1_{MB} infection by 90% at approximately 70 nM concentrations. The anti-HIV-1 activity of M41-P appeared to be mediated by the C-terminal helical sequence since deletion of that region from M41 yielded an inactive fusion protein, M41- Δ 178 (Table XXV). This interpretation was reinforced by experiments demonstrating that a truncated fusion protein lacking the DP178 sequence, M41 Δ 178, at the potent anti-fusion activity of the DP178 peptide in a concentration-dependent manner (Fig. 9).

the DP178 region, making it unavailable for activity.

A specific association between these is also indicated by other human monoclonal studies. For example, Fab-d failed to bin
 5 DP178 peptide or the fusion protein M41Δ17 epitope was reconstituted by simply mixing reagents together (FIG. 10). Again, the permutation in the leucine zipper domain of the protein, M41-PA178, failed to reconstitute
 10 in similar mixing experiments.

9. EXAMPLE: METHOD FOR COMPUTER-ASSISTED IDENTIFICATION OF DP10 AND DP178-LIKE SEQUENCES

15 A number of known coiled-coil sequences are well described in the literature and contain specific repeat positioning for each amino acid. (The nomenclature labels each of seven amino acid heptad repeat A through G, with amino acids
 20 D, E, and G tending to be hydrophobic positions. Amino acids D, E, and G tend to be charged. These four positions (D, E, and G) form the amphipathic backbone of a monomeric alpha-helix. The backbones of multiple amphipathic helices interact with each other to form
 25 di-, tri-, tetrameric, etc., coiled-coil structures. In order to begin to design computer search algorithms for identifying coiled-coil sequences, a set of rules has been developed for identifying coiled-coil sequences in a database of protein sequences.

deducing the most likely possibilities for hept positioning of the amino acids of HIV-1 Bru DP- which is known to have coiled-coil structure, a 1 Bru DP178, which is still structurally undefi The analysis of each of the sequences is contain
 5 FIG. 12. For example, the motif for GCN4 was deduced as follows:

1. The only amino acids (using standard single letter amino acid codes) found in the A or positions of GCN4 were [LMNV].
- 10 2. All amino acids were found at B, C, E, F, positions except {CFGIMPTW}.
3. The PESEARCH motif would, therefore, be written as follows:
 [LMNV]-{CFGIMPTW}(2)-[LMNV]-{CFGIMPTW}(3)-
 15 [LMNV]-{CFGIMPTW}(2)-[LMNV]-{CFGIMPTW}(3)-
 [LMNV]-{CFGIMPTW}(2)-[LMNV]-{CFGIMPTW}(3)-
 [LMNV]-{CFGIMPTW}(2)-[LMNV]-{CFGIMPTW}(3)

Translating or reading the motif: "at the first
 20 position either L, M, N, or V must occur; at positions B and C (the next two positions) accept everything except C, F, G, I, M, P, T, or W; at the D position either L, M, N, or V must occur; at positions E and G (the next 3 positions) accept everything
 25 C, F, G, I, M, P, T, or W." This statement is contained four times in a 28-mer motif and five

sequence alignments for both DP107 and DP178 includes motif designs based on 28-mer, 35-mer, and full-length peptides. Notice that only slight differences occur in the motifs as the peptides are lengthened. Generally, lengthening the base sequence results in a less stringent motif. This is useful in broadening the possibilities for DP107- or DP-178-like primary amino acid sequences referred to in this document as "hits".

In addition to making highly specific each type peptide sequence to be searched, it is possible to make "hybrid" motifs. These may be made by "crossing" two or more very stringent motifs to make a new search algorithm which will recognize only both "parent" motif sequences but also peptide sequences which have similarities to either, or both "parents". For example, in the "parent" sequence of GCN4 is crossed with the possible "parent" motifs of DP-107. Now the motif must contain all of the amino acids at the A and D positions of both parents, and exclude the amino acids not found in either parent at other positions. The resulting hybrid from GCN4 or [LMNV]{CFGIMPTW} and DP107 (28-mer with first L in the D position) or [ILQT]{CDFIMPT} [ILMNQTV]{CFIMPT}. Notice that now only the hybrid motifs exist which cover both frames.

Hybridizations can be performed on any combination of two or more motifs. FIG. 17 summarizes several three-motif hybridizations including GCN4, DP107 (both frames), and DP178 both frames). Notice that the resulting motifs now becoming much more similar to each other. In fact, the first and third hybrid motifs are actual subsets of the second and fourth hybrid motifs respectively. This means that the first and third hybrid motifs are slightly more stringent than the second and fourth. It should also be noted that only minor changes in these four motifs, or by hybridizing them, a single motif could be obtained which would find all of the sequences. However, it should be remembered that stringency is also relevant. Finally, the most broad-spectrum and least-stringent hybrid motif is described in FIG. 18 which summarizes the hybridization of GCN4, DP107 (both frames), (both frames), c-Fos, c-Jun, c-Myc, and Flu loc.

A special set of motifs was designed based on the fact that DP-178 is located only approximately 100 amino acids upstream of the transmembrane spanning region of gp41 and just C-terminal to a proline that separates DP107 and DP178. It has been postulated that DP178 may be an amphipathic helix when membrane-associated, and that the proline might aid in the initiation of the helix formation. The same

release 11.0). Of these, 1092 are viral e glycoprotein sequences (library file PVIRU Tables V through XIV contain lists of prot names and motif hit locations for all the searched.

5

10. EXAMPLE: COMPUTER-ASSISTED IDENTIFICA
OF DP107 AND DP178-LIKE SEQU
IN HUMAN IMMUNODEFICIENCY VI

FIG. 20 represents search results for
10 isolate gp41 (PC/Gene protein sequence PEN
Notice that the hybrid motif which crosses
DP-178 (named 107x178x4; the same motif as
FIG. 16 found three hits including amino :
599, 636-688, and 796-823. These areas in
15 plus eight N-terminal and four C-terminal
DP178 plus seven N-terminal and ten C-term
acids; and an area inside the transmembran
(cytoplasmic). FIG. 20 also contains the
obtained from searching with the motif na
20 for which the key is found in FIG. 17 ({C
{CFP}x5). This motif also found thre hi
DP107 (amino acids 510-599), DP178 (615-7
cytoplasmic region (772-841). These hits
hits found by the motif 107x178x4 with co
25 additional sequences on both the amino an
termini. This is not surprising in that

at the very C-terminus of gp120, just upstream of
cleavage site (P7LZIPC and P12LZIPC); and 735-740
the cytoplasmic domain of gp41 (P23LZIPC). These
results are found in Tables VIII, IX, and X under
same sequence name as mentioned above. Notice that
5 the only area of HIV-1 BRU which is predicted by
Lupas algorithm to contain a coiled-coil region,
from amino acids 635-670. This begins eight amino
acids N-terminal to the start and ends eight amino
acids N-terminal to the end of DP178. DP107, due
10 to the fact that it is a known coiled coil, is not
predicted to contain a coiled-coil region using
Lupas method.

11. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION
15 OF DP107-LIKE AND DP178-LIKE
SEQUENCES IN HUMAN RESPIRATORY
SYNCYTIAL VIRUS

FIG. 21 represents search results for Human
Respiratory Syncytial Virus (RSV; Strain A2) fusion
glycoprotein F1 (PC/Gene protein sequence name
20 HRSVA). Motif 107x178x4 finds three hits including
amino acids 152-202, 213-243, and 488-515. The
arrangement of these hits is similar to what is
in HIV-1 except that the motif finds two regions
25 similarities to DP-178, one just downstream of
would be called the DP107 region or amino acids

12. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF
DP107-LIKE AND DP178-LIKE SEQUENCES
IN SIMIAN IMMUNODEFICIENCY VIRUS

Motif hits for Simian immunodeficiency virus (AGM3 isolate; PC/Gene protein sequence name PENV_SIVAG) are shown in FIG. 22. Motif 1 finds three hits including amino acids 566-624, and 703-730. The first two hits only amino acids between them and could probably be combined into one hit from 566-624 which would represent a DP107-like hit. Amino acids 703-730 would then represent a DP178-like hit. ALLMC finds three hits including amino acids 556-624 (DP107-like), 651-699 (DP178-like), and 808-852 which represents the transmembrane spanning region. Motif 2 also has one region from 655-692 with a high propensity to form a coiled coil as predicted by the Lupas algorithm. Both 107x178x4 and ALLMC find the same region. SIV does not have any motif hits in gp41.

20 The identification of DP178/DP107 and the second SIV isolate (MM251) is demonstrated in the Example presented, below, in Section 19.

13. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF
DP107-LIKE AND DP178 LIKE SEQUENCES
25 IN CANINE DISTEMPER VIRUS

interest including: amino acids 228-297, which completely overlaps both the Lupas prediction a DP107-like 107x178x4 hit; residues 340-381, which overlaps the second 107x178x4 hit; and amino acids 568-602, which is DP178-like in that it is located just N-terminal to the transmembrane region. It overlaps another region (residues 570-602) predicted by the Lupas method to have a high propensity to form a coiled coil. Several PLZIP motifs successfully identified areas of interest including P6 and P12 which highlight residues 336-357 and 336-361 respectively; P1 and P12LZIPC which find residues 414; and P12 and P23LZIPC which find residues 562-592 respectively.

14. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION
DP107-LIKE AND DP178-LIKE SEQUENCES
IN NEWCASTLE DISEASE VIRUS

FIG. 24 shows the motif hits found in Newcastle Disease Virus (strain Australia-Victoria/32; protein sequence name PVGLF_NDVA). Motif 107x178 finds two areas including a DP107-like hit at amino acids 151-178 and a DP178-like hit at residues 512. ALLMOTIF5 finds three areas including residues 117-182, 231-272, and 426-512. The hits from ALLMOTIF5 include a region which is predicted by the Lupas method to have a high coiled-coil propensity (

(FIG. 25). In addition, the two motifs have like hit just slightly C-terminal at amino 241. Both motifs also have DP178-like hits transmembrane region including amino acids 462-512 respectively. Several PLZIP motif
 5 also observed including 283-303 (P5LZIPC), (P12LZIPC), 453-474 (P6LZIPC), and 453-481. The Lupas algorithm predicts that amino acids may have a propensity to form a coiled-coil.

10 16. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF DP107-LIKE AND DP178-LIKE SEQUENCES IN INFLUENZA A VIRUS

FIG. 26 illustrates the Lupas predicted coiled coil in Influenza A Virus (strain A
 15 at residues 379-436, as well as the motif 107x178x4 at amino acids 387-453, and for residues 380-456. Residues 383-471 (38-12 were shown by Carr and Kim to be an extended coil when under acidic pH (Carr and Kim, 1973: 823-832). The Lupas algorithm predicts
 20 coil at residues 379-436. All three methods successfully predicted the region shown to have coiled-coil structure; however, ALLMC predicted the greatest portion of the 88 residues
 25 structure.

that several of the identified peptides exhibit antiviral capability. Additionally, it is shown that several of these peptides exhibit a substantial helical character.

5

17.1 MATERIALS AND METHODS

Structural analyses: The CD spectra were measured in a 10mM sodium phosphate, 150mM sodium chloride, pH 7.0, buffer at approximately 10mM concentrations, using a 1 cm pathlength cell on Jobin/Yvon Autodichrograph Mark V CD

10

spectrophotometer. Peptides were synthesized according to the methods described, above, in 6.1. Peptide concentrations were determined from using Edlehoch's method (1967, Biochemistry 6:

15

Anti-RSV antiviral activity assays: The cells utilized herein tested the ability of the peptide to disrupt the ability of HEp2 cells acutely infected with RSV (i.e., cells which are infected with a multiplicity of infection of greater than 2) to fuse and cause syncytial formation on a monolayer of uninfected and uninfected line of Hep-2 cells. The lower the observed level of fusion, the greater the antiviral activity of the peptide was determined to be.

20

25

Uninfected confluent monolayers of Hep-2 cells were grown in microtiter wells in 3% EMEM (Eagle's)

washed with DPBS (Dulbecco's Phosphate Buff
w/o calcium or magnesium; Bio Whittaker Cat
512F) and cell monolayers were removed with
(1:5000; Gibco Life Technologies Cat. No. 1
The cells were spun 10 minutes and resusper
5 FBS. Cell counts were performed using a
hemacytometer. Persistent cells were add d
uninfected Hep-2 cells.

The antiviral assay was conducted by,
removing all media from the wells containin
10 uninfected Hep-2 cells, then adding peptide
dilutions described below) in 3% EMEM, and
RSV-infected Hep2 cells per well. Wells we
incubated at 37°C for 48 hours.

After incubation, cells in control we
15 checked for fusion centers, media was remo
wells, followed by addition, to each w ll,
Crystal Violet stain or XTT. With respect
Violet, approximately 50µl 0.25% Crystal V.
in methanol were added to each well. The
20 rinsed immediately, to remove excess stain
allowed to dry. The number of syncytia pe
then counted, using a dissecting microscop

With respect to XTT (2,3-bis[2-Methox
sulfophenyl]-2H-tetrazolium-5-carboxyanili
25 salt), 50µl XTT (1mg/ml in RPMI buff red w
HEPES pH 7.2-7.4. plus 5% DMSO) were adde

2) peptides T-120 to T-141 and T-576, as shown in FIG. 27B, and peptides T-12, T-13, T-15, T-19, T-28, T-30, T-66, T-69, T-70 and T-576, as shown in FIG. 27C and

5 3) peptides T-67 and T-104 to T-119 and T-384, as shown in FIG. 28A, and peptides T-71, T-613 to T-662 to T-676 and T-730, as shown in FIG. 28B.

The peptides of group 1 represent portions of the RSV F2 protein DP178/107-like region. The peptides of group 2 represent portions of the RSV F1 protein DP107-like region. The peptides of groups 3 represent portions of the RSV F1 protein DP178-like region.

Each peptide was tested at 2-fold serial dilutions ranging from 100 μ g/ml to approximately 100ng/ml. For each of the assays, a well containing no peptide was also used. The IC₅₀ data for each peptide represents the average of several experiments conducted utilizing that peptide.

17.2 RESULTS

20 The data summarized in FIGS. 27A-B and 28A-B represent antiviral and structural information obtained from peptides derived from the RSV F2 DP178/DP107-like F2 region (FIG. 27A-B), the RSV DP-107-like region (FIG. 27C-D) and the RSV DP178 F2 region (FIG. 28A-B).

As shown in FIGS. 27A-B, a number of the R

131, T-135 and T-137 to T-139, as demonstrated by their low IC_{50} values. In addition, CD analysis (27A, 27C) reveals that many of the peptides exhibit some detectable level of helical structure.

5 The results summarized in FIG. 28A-B show that a number of DP178-like purified peptides exhibit a range of potent anti-viral activity. These include, for example, T-67, T-104, T-105 and T-119, as listed in FIG. 28A, and T-665 to T-671 to T-673, as listed in FIG. 28B. In some of the DP178-like peptides exhibited of helicity.

10 Thus, the computer assisted searches hereinabove, successfully identified viral domains that represent highly promising antiviral compounds.

18. EXAMPLE: POTENTIAL HUMAN PARAINFLUENZA
TYPE 3 DP178/DP107 ANALOGS:
ANTIVIRAL CHARACTERIZATION

20 In the Example presented herein, human parainfluenza virus type 3 (HPIV3) peptides identified by utilizing the computer-assisted search described in the Examples presented in Section 15, above, were tested for anti-HPIV3 activity. Additionally, circular dichroism (CD) structural analyses were conducted on the peptides, and

spectra were measured in a 10mM sodium phosphat
150mM sodium chloride, pH 7.0, buffer at approx
10mM concentrations, using a 1 cm pathlength ce
Jobin/Yvon Autodichrograph Mark V CD
spectrophotometer. Peptide concentrations were
5 determined from A_{280} using Edlehoch's method (19
Biochemistry 6:1948).

Anti-HPIV3 antiviral activity assays: The
utilized herein tested the ability of the pepti
disrupt the ability of Hep2 cells chronically i
10 with HPIV3 to fuse and cause syncytial formatic
monolayer of an uninfected line of CV-1W cells.
more potent the lower the observed level of fus
the greater the antiviral activity of the pepti

Uninfected confluent monolayers of CV-1W c
15 were grown in microtiter wells in 3% EMEM (Eagl
Minimum Essential Medium w/o L-glutamine [Bio
Whittaker Cat. No. 12-125F], with fetal bovine
[FBS; which had been heat inactivated for 30 mi
at 56°C; Bio Whittaker Cat. No. 14-501F) supple
20 at 3%, antibiotics/antimycotics (Gibco BRL Life
Technologies Cat. No. 15040-017) added at 1%,
glutamine added at 1%.

To prepare Hep2 cells for addition to uninfected
cells, cultures of chronically infected Hep2 c
25 were washed with DPBS (Dulbecco's Phosphate Bu
ffered Saline w/o calcium or magnesium: Bio Whittaker

dilutions described below) in 3% EMEM, and chronically HPIV3-infected Hep2 cells per were then incubated at 37°C for 24 hours.

On day 2, after cells in control well checked for fusion centers, media was removed from wells, followed by addition, to each well, approximately 50µl 0.25% Crystal Violet stain in methanol. Wells were rinsed immediately, excess stain removed and were then allowed to dry. Number of syncytia per well were then counted, using a dissecting microscope.

Alternatively, instead of Crystal Violet analysis, cells were assayed with XTT, as above, in Section 17.1.

Peptides: The peptides characterized in the study presented herein were:

- 1) Peptides 157 to 188, as shown in FIG. 29A, and peptides T-38 to T-40, T-42 to T-46 as shown in FIG. 29B. These peptides are from the DP107 region of the HPIV3 F protein (represented by HPF3 107, as shown in FIG. 29A); and
- 2) Peptides 189 to 210, as shown in FIG. 269, T-626, T-383 and T-577 to T-579 as shown in FIG. 30B. These peptides are primarily from the DP178 region of the HPIV3 F protein (represented by HPF3 178, as shown in FIG. 30B).

500ng/ml. For each of the assays, a well containing no peptide was also used.

18.2 RESULTS

5 The data summarized in FIGS. 29A-B and 30 represent antiviral and structural information obtained from peptides derived from the HPIV3 protein DP107-like region (FIG. 29A-B) and the fusion protein DP178-like region (FIG. 30A-B).

10 As shown in FIG. 29A-B, a number of the H DP107-like peptides exhibited potent levels of antiviral activity. These peptides include, for example, peptides T-40, T-172 to T-175, T-178, and T-185.

15 The results summarized in FIG. 30A-B demonstrate that a number of the DP178-like peptides tested exhibit a range of anti-viral activity. These peptides include, for example, peptides 194 to 205 evidenced by their low IC_{50} values. In fact, peptides 201 to 205 exhibit IC_{50} values in the nanogram range. 20 In addition, many of the DP178-like peptides exhibited some level of helicity.

25 Thus, the computer assisted searches described hereinabove, have successfully identified viral peptide domains that represent highly promising HPIV3 antiviral compounds.

amino acid residues 156-219 and 245-286. I
therefore, identify similar regions.

Interestingly, the first SIV peptide 1
(i.e., from amino acid residue 156 to approx
amino acid residue 219) correlates with a I
5 region, while the second region identified
approximately amino acid residue 245 to app
amino acid residue 289) correlates with the
region of HIV. In fact, an alignment of S1
MM251 and HIV isolate BRU, followed by a se
10 the best peptide matches for HIV DP107 and
reveals that the best matches are found with
peptide regions identified by the 107x178x
ALLMOTI5 search motifs.

It should be noted that a potential co
15 region at amino acid residues 242-282 is pr
the Lupas program. This is similar to the
in HIV in which the coiled-coil is predicted
Lupas program to be in the DP178 rather than
DP107 region. It is possible, therefore,
20 be similar to HIV in that it may contain a
structure in the DP107 region, despite such
structure being missed by the Lupas algorithm.
Likewise, it may be that the region corresponding
DP178 analog in SIV may exhibit an undefined
25 structure, despite the Lupas program's pre

20. **EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION
DP178/DP107 ANALOGS IN EPSTEIN-
VIRUS**

The results presented herein describe the identification of DP178/DP107 analogs within different Epstein-Barr Virus proteins. Epstein-Barr virus is a human herpes virus which is the causative agent of, for example, infectious mononucleosis (IM), which is also associated with nasopharyngeal carcinoma, Burkitt's lymphoma and other diseases. The virus predominantly exists in the latent form and is reactivated by a variety of stimuli.

FIG. 32 depicts the search motif results for the Epstein-Barr Virus (Strain B95-8; PC/Gene® protein sequence PVGLB_EBV) glycoprotein gp110 precursor (gp115). The 107x178x4 motif identified two regions of interest, namely the regions covered by amino acid residues 95-122 and 631-658. One PZIP region was identified at amino acid residue 732-752 which is likely a cytoplasmic region of the protein. The algorithm predicts a coiled-coil structure for amino acids 657-684. No ALLMOTIF regions were identified.

FIG. 33 depicts the search motif results for the Zebra (or EB1) trans-activator protein (BZLF1) of the above-identified Epstein-Barr virus. This protein is a transcription factor which represents the putative mediator of viral reactivation. It is a member of the

at amino acid residues 193-220, as shown in
The Lupas program predicted no coiled-coil

21. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF
DP178/DP107 ANALOGS IN MEASLES VIRUS

5 FIG. 34 illustrates the motif search for
the fusion protein F1 of measles virus, strain
Edmonston (PC Gene® protein sequence PVGLF)
successfully identifying DP178/DP107 analogs.
The 107x178x4 motif identifies a single
10 amino acid residues 228-262. The ALLMOTIF
motif identifies three regions, including
residues 116-184, 228-269 and 452-500. The
containing proline residues followed by a
zipper-like sequence were found beginning
15 residues 214, 286 and 451.

The Lupas program identified two regions
predicted had potential for coiled-coil structure
which include amino acid residues 141-172

20 22. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF
DP178/DP107 ANALOGS IN HEPATITIS B VIRUS

FIG. 35 depicts the results of a PZIP
search conducted on the Hepatitis B virus
Two regions of interest within the major surface
25 antigen precursor S protein were identified.
The first lies just C-terminal to the proposed

putative DP178/DP107 analog regions. The pept
synthesized according to standard Fmoc chemist
Rinkamide MBHA resins to provide for carboxy t
blockade (Chang, C.D. and Meinhofer, J., 1978,
Pept. Protein Res. 11:246-249; Fields, G.B. an
5 R.L., 1990, Int. J. Pept. Protein Res. 35:161-
Following complete synthesis, the peptide amino
terminus is blocked through automated acetylat
the peptide is cleaved with trifluoroacetic ac
and the appropriate scavengers (King, D.S. et
10 1990, Int. J. Pept. Res. 36:255-266). After c
the peptide is precipitated with ether and dri
vacuum for 24 hours.

The anti-HBV activity of the peptides is
by utilizing standard assays to determine the
15 peptide concentration required to cause an acc
(e.g., 90%) decrease in the amount of viral pr
formed by cells exposed to an HBV viral inocul
Candidate antiviral peptides are further charac
in model systems such as wood chuck tissue cul
20 animal sytems, prior to testing on humans.

23. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATIO
DP178/DP107 ANALOGS IN SIMIAN M
PFIZER MONKEY VIRUS

25 The results depicted herein illustrate th
results of search motifs conducted on the Simi

24. EXAMPLE: COMPUTER-ASSISTED IDENTIFICATION OF DP178/DP107 ANALOGS IN BACTERIAL PROTEINS

5 The results presented herein demonstrate the identification of DP178/DP107 analogs corresponding to sequences present in proteins of a variety of bacterial species.

10 FIG. 37 depicts the search motif results for the *Pseudomonas aeruginosa* fimbrial protein (P). Regions were identified by motifs 107x178x and ALLMOTI5. The regions located at amino acid residues 30-67 and 80-144 were identified by the 107x178x motif. The regions at amino acid residues 80-125 were identified by the ALLMOTI5.

15 FIG. 38 depicts the search motif results for the *Pseudomonas gonorrhoeae* fimbrial protein (P). A single region was identified by both the 107x178x and the ALLMOTI5 motifs. The region located at amino acid residues 66-97 was identified by the 107x178x motif. The region located at amino acid residues 102-129 was identified by the ALLMOTI5 search motif.

20 coil regions were predicted by the Lupas algorithm.

25 FIG. 39 depicts the search motif results for the *Hemophilus Influenza* fimbrial protein (Pi). A single region was identified by both the 107x178x and the ALLMOTI5 motifs. The region located at amino acid residues 102-129 was identified by the 107x178x motif. The region located at amino acid residues 130-144 was identified by the ALLMOTI5 motif.

region located at amino acid residues 102-148 identified by the ALLMOTI5 search motif. No coil regions were predicted by the Lupas program.

FIG. 41 summarizes the motif search results conducted on the Staphylococcus aureus enterotoxin Type E protein. These results demonstrate the successful identification of DP178/DP107 analogs corresponding to peptide sequences within this protein, as described below.

The ALLMOTI5 motif identified a region at amino acid residues 22-27. The 107x178x4 motif identified two regions, with the first at amino acid residues 69 and the second at 88-115. A P12LZIPC motif identified two regions, at amino acid residues 120-148 and 230-250.

The Lupas program predicted a region with propensity for coiling at amino acid residues 102-148. This sequence is completely contained within the region identified by both ALLMOTI5 and 107x178x4 motifs.

FIG. 42 depicts the search motif results conducted on a second Staphylococcus aureus enterotoxin A. Two regions were identified by ALLMOTI5 motif, at amino acid residues 22-70 and amino acid residues 164-205. The 107x178x4 motif identified two regions, the first at amino acid residues 26-100 and the second at amino acid residues 165-192. A

55-115, and the second residing at amino a
216-254. The 107x178x4 motif identified a
region at amino acid residues 78-105. No
regions were predicted by the Lupas pr gra

5 25. EXAMPLE: COMPUTER-ASSISTED IDENTIFIC
DP178/DP107 ANALOGS WITHIN
HUMAN PROTEINS

The results presented herein demonstr
identification of DP178/DP107 analogs corr
peptide sequences present within several d
10 human proteins.

FIG. 44 illustrates the search motif
conducted on the human c-fos oncoprotein.
ALLMOTI5 motif identified a single region
acid residues 155-193. The 107x178x4 moti
15 one region at amino acid residues 162-193.
program predicted a region at amino acid r
201 to have coiled-coil structure.

FIG. 45 illustrates the search motif
conducted on the human lupus KU autoantige
20 P70. The ALLMOTI5 motif identified a sing
amino acid residues 229-280. The 107x178x
identified one region at amino acid residu
The Lupas program predicted a region at a
residues 232-267 to have coiled-coil struc
25

FIG. 46 illustrates the search motif

26. EXAMPLE: POTENTIAL MEASLES VIRUS DP178/E
ANALOGS: CD AND ANTIVIRAL
CHARACTERIZATION

In the Example presented herein, measles virus DP178-like peptides identified by utilizing computer-assisted search motifs described in the Examples presented in Sections 9 and 21, above tested for anti-MeV activity. Additionally, dichroism (CD) structural analyses are conducted on the peptides, as discussed below. It is demonstrated that several of the identified peptides exhibit antiviral capability. Additionally, it is shown that none of these peptides exhibit a substantial helical character.

26.1 MATERIALS AND METHODS

Structural analyses: The CD spectra were measured in a 10mM sodium phosphate, 150mM sodium chloride, pH 7.0, buffer at approximately 10mM concentrations, using a 1 cm pathlength cell and a Jobin/Yvon Autodichrograph Mark V CD spectrophotometer. Peptide concentrations were determined from A_{280} using Edlehoch's method (1 Biochemistry 6:1948).

Anti-M V antiviral activity syncytial reduction assay: The assay utilized herein tested the ability of the peptides to disrupt the ability of Virus

[FBS; which had been heat inactivated for :
at 56°C; Bio Whittaker Cat. No. 14-501F) su
at 10%, antibiotics/antimycotics (Bio Whitt
No. 17-602E) added at 1%, and glutamine ad

To prepare acutely infected Vero cells:
5 addition to the uninfected cells, cultures
infected Vero cells were washed twice with
Whittaker Cat. No. 10-543F) and cell monol
removed with trypsin (Bio Whittaker Cat. N
Once cells detached, media was added, any
10 clumps of cells were dispersed, and hemacy
counts were performed.

The antiviral assay was conducted by,
removing all media from the wells containi
uninfected Vero cells, then adding peptide
15 dilutions described below) in 10% FBS EMEM
acutely MeV-infected Vero cells per well.
then incubated at 37°C for a maximum of 18

On day 2, after cells in control well
checked for fusion centers, media was remo
20 wells, followed by addition, to each well,
approximately 50µl 0.25% Crystal Violet st
methanol. Wells were rinsed twice with wa
immediately, to remove excess stain and wa
allowed to dry. The number of syncytia p
25 then counted, using a dissecting microscop

Anti-MeV antiviral activity plaque r

The antiviral assay was conducted by, first removing all media from the wells containing uninfected Vero cells, then adding peptides (at dilutions described below) in 10% FBS EMEM, and stock virus at a final concentration of 30 plaque forming units (PFU) per well. Wells were then incubated at 37°C for a minimum of 36 hours and a maximum of 48 hours.

On day 2, after cells in control wells were checked for fusion centers, media was removed from wells, followed by addition, to each well, of approximately 50 µl 0.25% Crystal Violet stain in methanol. Wells were rinsed twice with water immediately, to remove excess stain and were then allowed to dry. The number of syncytia per well was then counted, using a dissecting microscope.

Peptides: The peptides characterized in the study presented herein were peptides T-252A0 to T-256A0, T-257B1/C1, and T-258B1 to T-265B0, and to T-268A0, as shown in FIG. 47. These peptides represent a walk through the DP178-like region of the MeV fusion protein.

Each peptide was tested at 2-fold serial dilutions ranging from 100 µg/ml to approximately 100 ng/ml. For each of the assays, a well containing no peptide was also used.

The IC_{50} values for such peptides were determined in FIG. 47, and ranged from 1.35 μ g/ml (257B1/C1) to 0.072 μ g/ml (T-265B1). None of the like peptides showed, by CD analysis, a detectable level of helicity.

5 Thus, the computer assisted searches described hereinabove, as in for example, the Example in Section 9, for example, successfully identified viral peptide domains that represent highly anti-MeV antiviral compounds.

10

27. EXAMPLE: POTENTIAL SIV DP178/DP107 AN
ANTIVIRAL CHARACTERIZATION

 In the Example presented herein, simian immunodeficiency virus (SIV) DP178-like peptides identified by utilizing the computer-assisted motifs described in the Examples presented 9, 12 and 19, above, were tested for anti-SIV activity. It is demonstrated that several identified peptides exhibit potent antiviral capability.

20

27.1 MATERIALS AND METHODS

Anti-SIV antiviral assays: The assays herein were as reported in Langolis et al. A.J. et al., 1991, AIDS Research and Human Retroviruses 7:713-720).

25

27.2 RESULTS

The data summarized in FIG. 48 represents antiviral information obtained via "peptide walk" through the DP178-like region of the SIV TM protein.

5 As shown in FIG. 48, peptides T-391 to T-400 were tested and exhibited a potent antiviral activity against crude peptides.

Thus, the computer assisted searches described hereinabove, as in for example, the Example presented in Section 9, for example, successfully identified viral peptide domains that represent highly potent anti-SIV antiviral compounds.

28. EXAMPLE: ANTI-VIRAL ACTIVITY OF DP107 AND DP178 PEPTIDE TRUNCATIONS AND MUTATIONS

15 The Example presented in this Section represents a study of the antiviral activity of DP107 and DP178 truncations and mutations. It is demonstrated that several of these DP107 and DP178 modified peptides exhibit substantial antiviral activity.

20

28.1 MATERIALS AND METHODS

Anti-HIV assays: The antiviral assays performed were as those described, above, in Section 6.1. Assays utilized HIV-1/IIIB and/or HIV-2 NIH2-BL76. Purified peptides were used, unless otherwise indicated. FIGS. 49A-C.

which vary from the DP178 sequence
acid sequence. Further, certain
peptides have had amino- and/or C
terminal groups either added or
as indicated in the figures; and
5 2) FIG. 50. presents peptides which
truncations of DP107 and/or the C
surrounding the DP107 amino acid
HIV-1 BRU isolate. Certain of them
are unblocked or biotinylated, as
10 in the figure.

Blocked peptides contained an acyl N-terminus
and an amide C-terminus.

28.2 RESULTS

15 Anti-HIV antiviral data was obtained for
group 1 DP178-derived peptides listed in FIG. 49A-C
The full-length, non-mutant DP178 peptide
in FIG. 49A-C as T20) results shown are for

20 In FIG. 49A, a number of the DP178 truncations
exhibited a high level of antiviral activity
evidenced by their low IC_{50} values. These
example, test peptides T-50, T-624, T-636
645 to T-650, T-652 to T-654 and T-656. T-656
25 represents a test peptide which contains a
mutation, as indicated by the residue's shaded
background. The HIV-1-derived test peptide

activity ($IC_{50} = 3\mu g/ml$). A number of additional peptides also exhibited a high level of antiviral activity. These included, for example, T-61/T-217 to T-221, T-235, T-381, T-677, T-377, T-590, T-378, T-591, T-271 to T-272, T-611, T-222 to T-224, T-60/T-224. Certain of the antiviral peptides point mutations and/or amino acid residue additions which vary from the DP178 amino acid sequence.

In FIG. 49C, point mutations and/or amino carboxy-terminal modifications are introduced into the DP178 amino acid sequence itself. As shown in this figure, the majority of the test peptides listed exhibit potent antiviral activity.

Truncations of the DP107 peptide (referred to in FIG. 50 as T21) were also produced and tested, as shown in FIG. 50. FIG. 50 also presents data concerning blocked and unblocked peptides which contain additional amino acid residues from the gp41 region in which the DP107 sequence resides. Most of the peptides showed antiviral activity, as evidenced by their low IC_{50} values.

Thus, the results presented in this Section demonstrate that not only do the full length DP178 peptides exhibit potent antiviral activity, but also truncations and/or mutant versions of these peptides can also possess substantial antiviral character.

29.1 MATERIALS AND METHODS

Electrophoretic Mobility Shift Assays

Briefly, an EBV Zebra protein was synthesized utilizing SP6 RNA polymerase in vitro transcription and wheat germ in vitro translation systems Corporation recommendations; Butler, E.T. & Chamberlain, M.J., 1984, J. Biol. Chem. 259:1000-1004; Pelham, H.R.B. and Jackson, R.J., 1976, Eur. J. Biochem. 67:247). The in vitro translated protein was then preincubated with increasing concentrations of peptide up to 250 ng/ml prior to the addition of 10,000 to 20,000 c.p.m. of a ³²P-labeled Zebra element DNA fragment. After a 20 minute incubation in the presence of the response element, the reaction was analyzed on a 4% non-denaturing polyacrylamide gel followed by autoradiography, utilizing standard EMSA shift procedures. The ability of a test peptide to prevent Zebra homodimer DNA binding was assayed as the peptide's ability to abolish the response element migration retardation characteristic of a bound nucleic acid molecule.

Peptides: The peptides characterized in this study represent peptide walks through the Zebra element containing, and flanked on both sides by, the DP178/DP107 analog region identified in the Zebra element presented in Section 20, above, and shown in FIG. 33. Specifically, the peptide walks

29.2 RESULTS

The EBV Zebra protein transcription factor contains a DP178/DP107 analog region, as demonstrated in the Example presented, above, in Section 20 protein appears to be the primary factor responsible for the reactivation capability of the virus. method by which the DNA-binding function of the virus may be abolished may, therefore, represent an effective antiviral technique. In order to identify potential anti-EBV DP178/DP107 peptides, there 10 peptides derived from the region identified in 20, above, were tested for their ability to inhibit Zebra protein DNA binding.

The test peptides' ability to inhibit Zebra protein DNA binding was assayed via the EMSA as described, above, in Section 28.1. The data 15 summarized in FIG. 51A-B presents the results of assays of the listed EBV test peptides. These peptides represent one amino acid "walks" through the region containing, and flanked on both sides by DP178/DP107 analog region identified in the Example presented in Section 20, above, and shown as shown in FIG. 33. As shown in FIG. 51A-B, the region of 20 which these peptides are derived lies from EBV protein amino acid residue 173 to 246. A number of the test peptides which were assayed exhibited 25 ability to inhibit Zebra protein homodimer DNA binding.

of the invention, and functionally equivalent
and components are within the scope of the invention.
Indeed, various modifications of the invention
in addition to those shown and described herein
will become apparent to those skilled in the art
5 foregoing description and accompanying drawings.
Such modifications are intended to fall within the scope
of the appended claims.

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WHAT IS CLAIMED IS:

1. An isolated peptide recognized by an
ALLMOTI5, 107x178x4 or a PLZIP sequence search
5

2. The peptide of Claim 1 wherein the p
corresponds to a peptide present in a virus.

3. The peptide of Claim 2 in which the
10 HIV-1 or HIV-2.

4. The peptide of Claim 2 in which the
a respiratory syncytial virus.

15 5. The peptide of Claim 2 in which the
a human parainfluenza virus.

6. The peptide of Claim 2 in which the
an influenza virus.
20

7. The peptide of Claim 2 in which the
a hepatitis B virus.

8. The peptide of Claim 2 wherein the v
25 an Epstein-Barr virus.

11. The method of Claim 9 wherein the
respiratory syncytial virus.

12. The method of Claim 9 wherein the
human parainfluenza virus.

5

13. The method of Claim 9 wherein the
an influenza virus.

14. The method of Claim 9 in which the
a hepatitis B virus.

10

15. The method of Claim 9 wherein the
an Epstein-Barr virus.

15

20

25

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EQ ID:1) YTSLIHSLIEESQSQEKNEQELLELDKWASLWNWF

EQ ID:3) YTNITIYNLLEESQSQEKNEQELLELDKWASLWNWF

YTGIIYNLLEESQSQEKNEQELLELDKWANLWNWF

YTSLIYSLLEKSQTQEKNEQELLELDKWASLWNWF

LEANISKSLEAQIQQEKMYELQKLNWDIFGNWF

) LEANISQSLEAQIQQEKMYELQKLNWDVFTNWL

SSESFTLLEQWNNWKLQAEQWLEQINEKHYLEDIS

QQLLDVWKRQQEMRLTVHGTKNLQARVTAIEKYLKDQ

CGGNNLLRAIEAQQHLLQLTVHG IKQLQARILAVERYLKDQ

LQARILAVERYLKDQQQ

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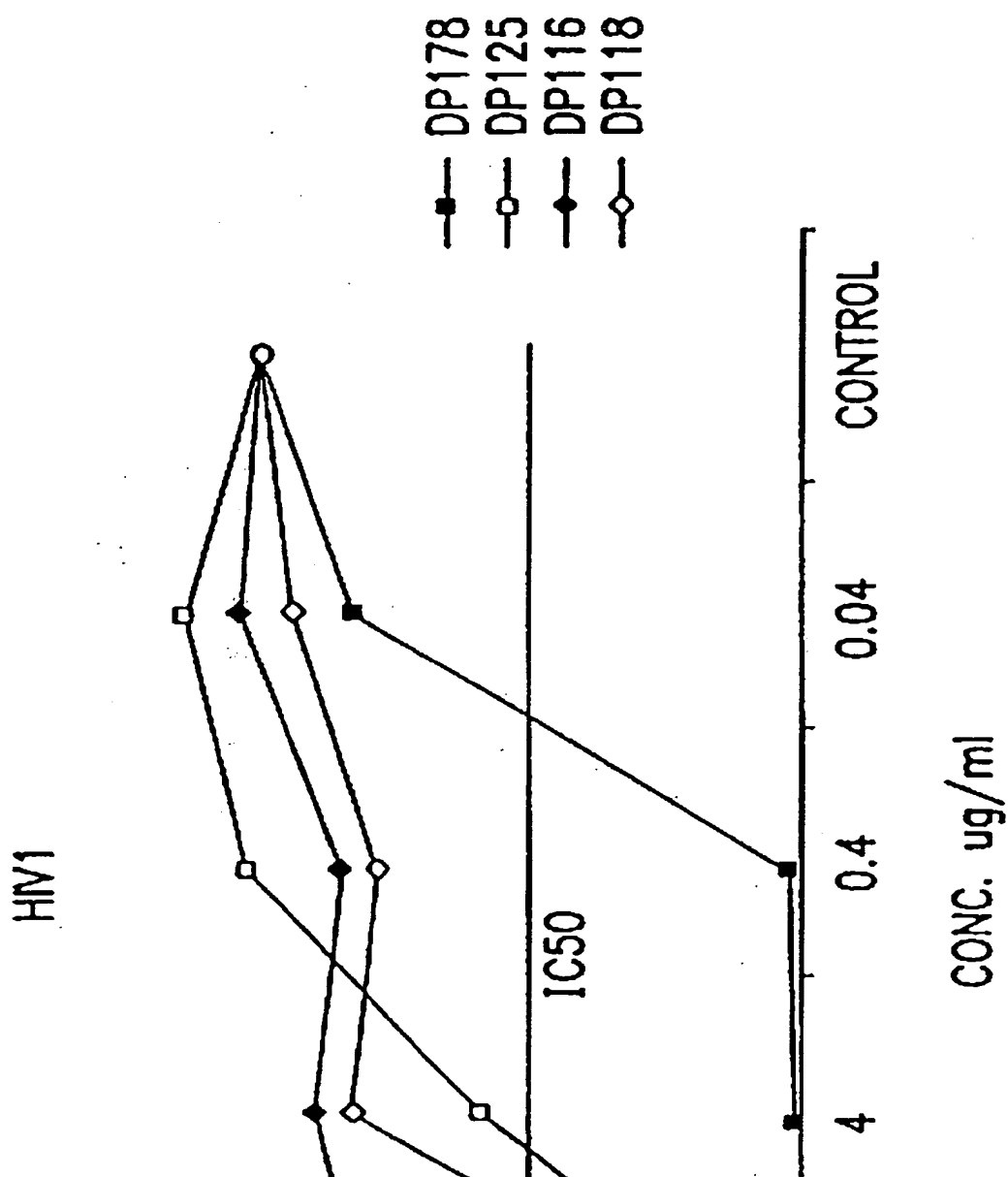


FIG.2

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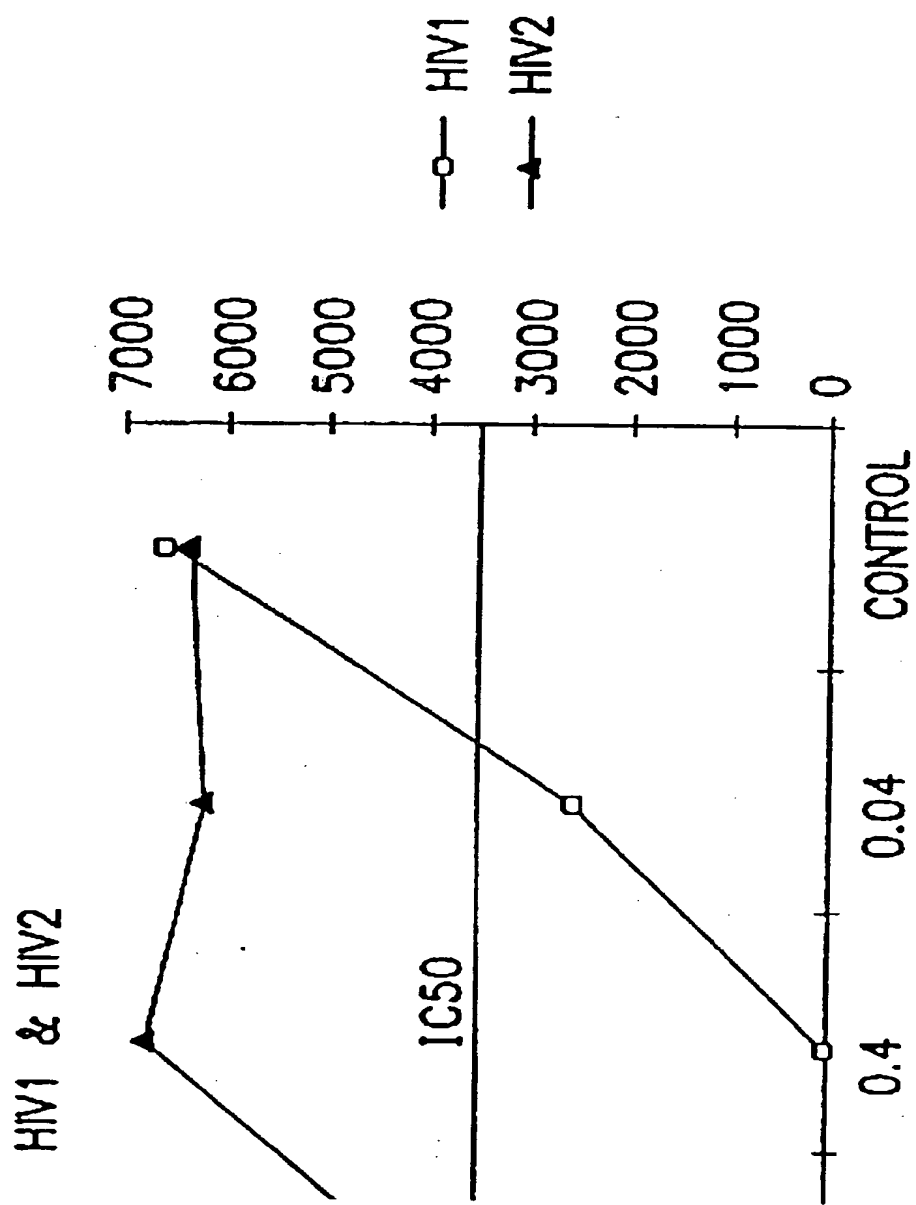


FIG 2

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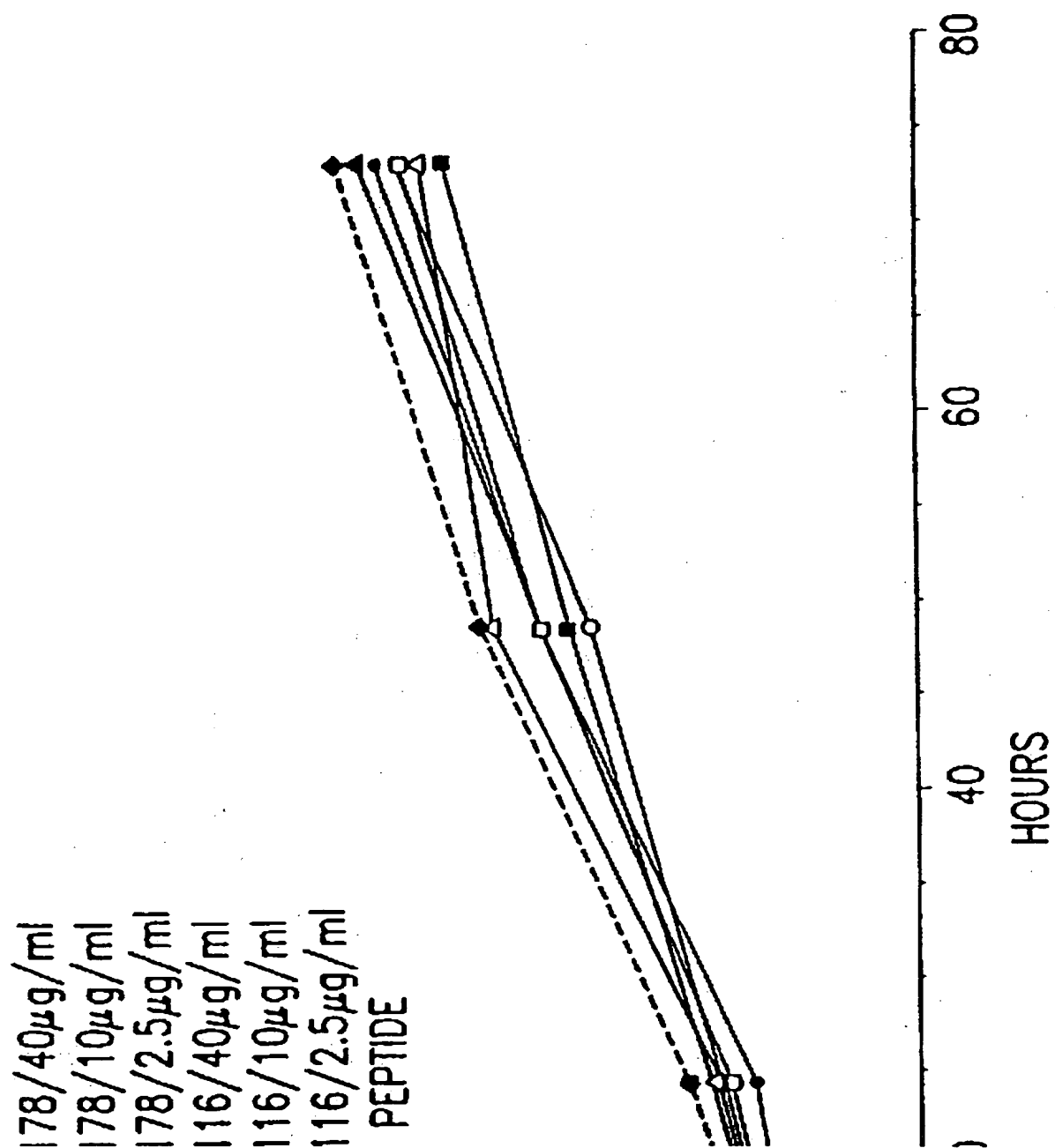
Number of Syncytia/well: concentration in $\mu\text{g/ml}$ (micrograms/ml)								
DP178	10	5	1	0.2	0.1	0.05	0.025	0.0125
<i>Syncytia</i>								
HIV1LAI	0	0	0	0	0	0	0	0
HIV1MN	0	0	0	0	0	ND	ND	ND
HIV1RF	0	0	0	0	0	ND	ND	ND
HIV1SF2	0	0	0	0	0	ND	ND	ND
DP125	10	5	1	0.2	0.1	0.05	0.025	0.0125
<i>Syncytia</i>								
HIV1LAI	0	0	54	69	80	75	79	82
HIV1MN	0	0	30	36	ND	ND	ND	ND
HIV1RF	0	0	67	63	ND	ND	ND	ND
HIV1SF2	0	0	9	66	ND	ND	ND	ND
DP116	10	5	1	0.2	0.1	0.05	0.025	0.0125
<i>Syncytia</i>								
HIV1LAI	75	ND	ND	ND	ND	ND	ND	ND
HIV1MN	35	ND	ND	ND	ND	ND	ND	ND
HIV1RF	81	ND	ND	ND	ND	ND	ND	ND
HIV1SF2	81	ND	ND	ND	ND	ND	ND	ND

FIG 4A

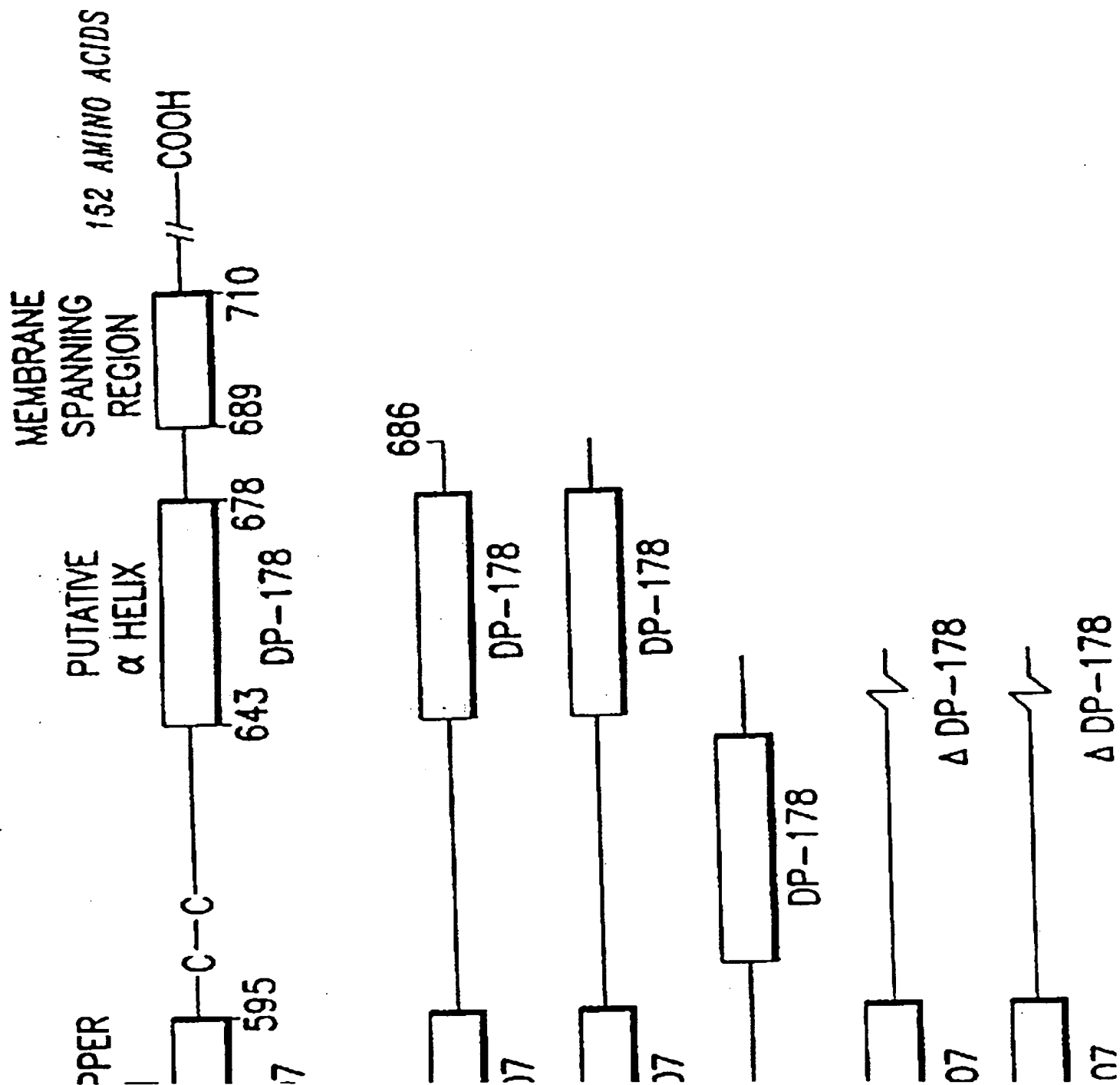
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<u>HIV1</u>								
<u>Number of Syncytio/well: concentration in ng/ml (nonc</u>								
DP178	20	10	5	2.5	1.25	0.625	0.3125	C
<u>Syncytia</u>								
HIV1	0	0	0	0	0	14	20	
DP116	20	10	5	2.5	1.25	0.625	0.3125	C
<u>Syncytia</u>								
HIV1	ND	48	ND	ND	ND	ND	ND	
<u>HIV2</u>								
<u>Number of Syncytio/well: concentration in µg/ml (mic</u>								
DP178	20	10	5	2.5	1.25	0.625	0.3125	C
<u>Syncytia</u>								
HIV2	50	54	55	57	63	77	78	

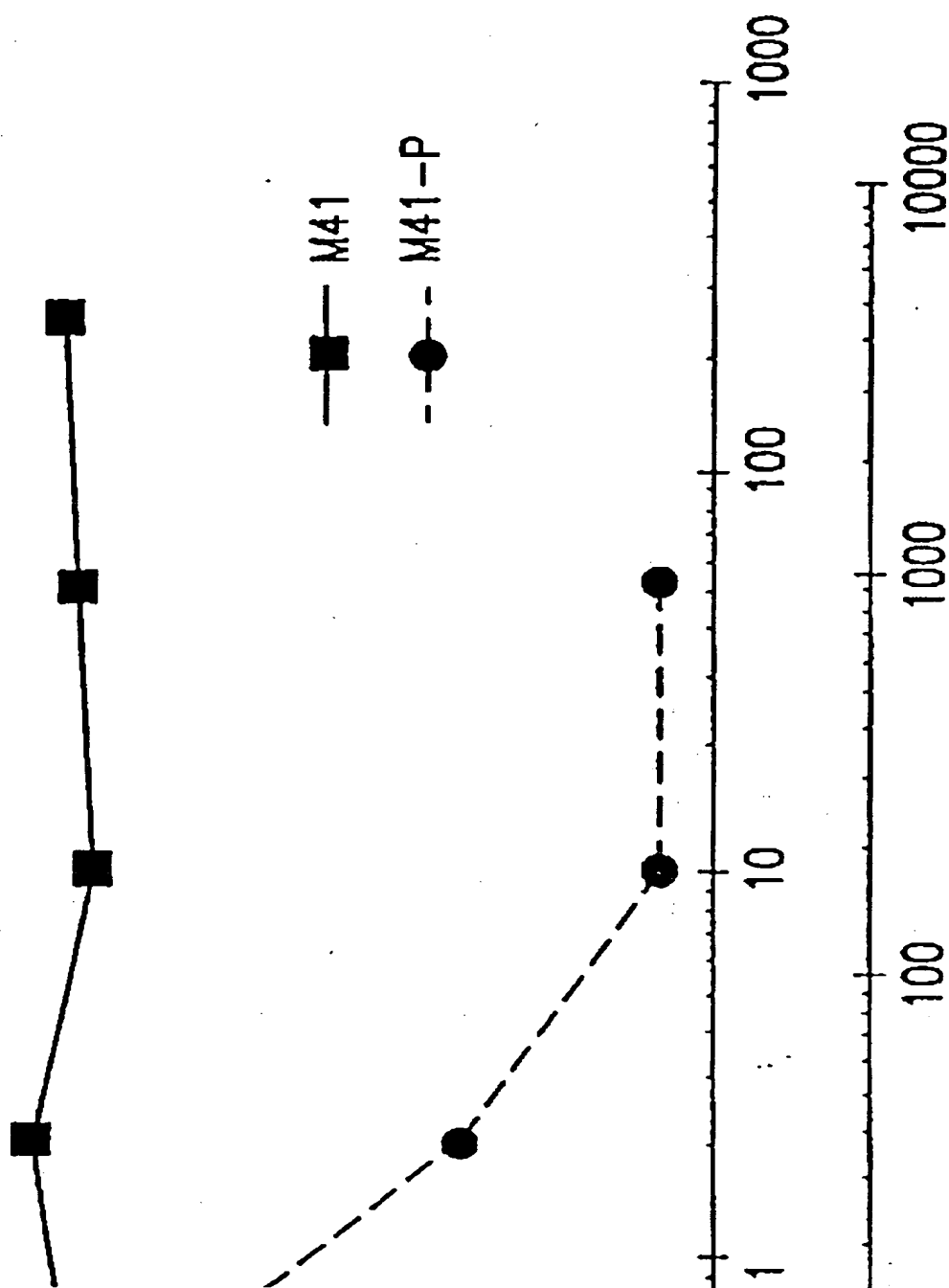
7872-020 (SHEET 6 OF 63)



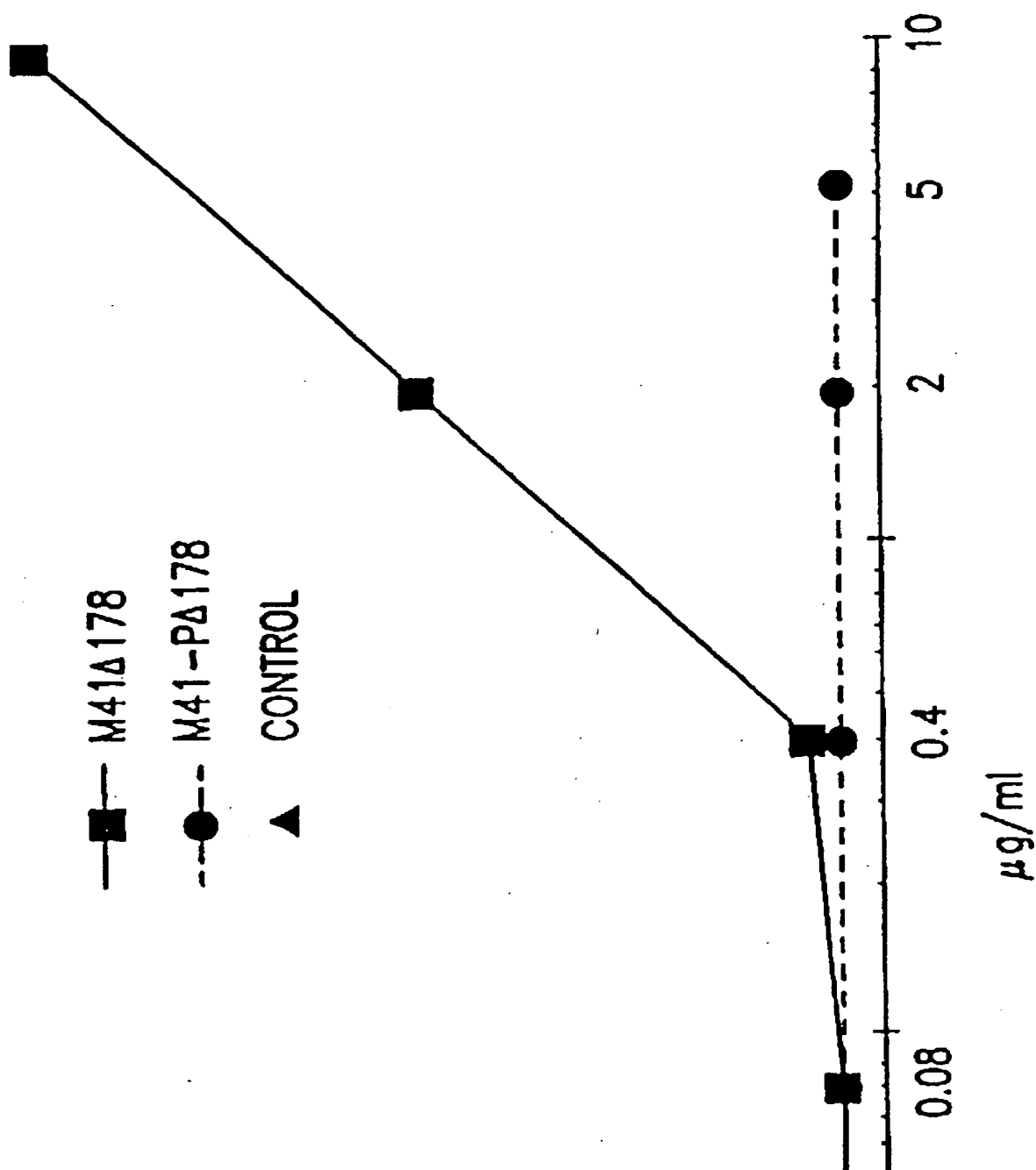
7872-020 (SHEET 7 OF 63)



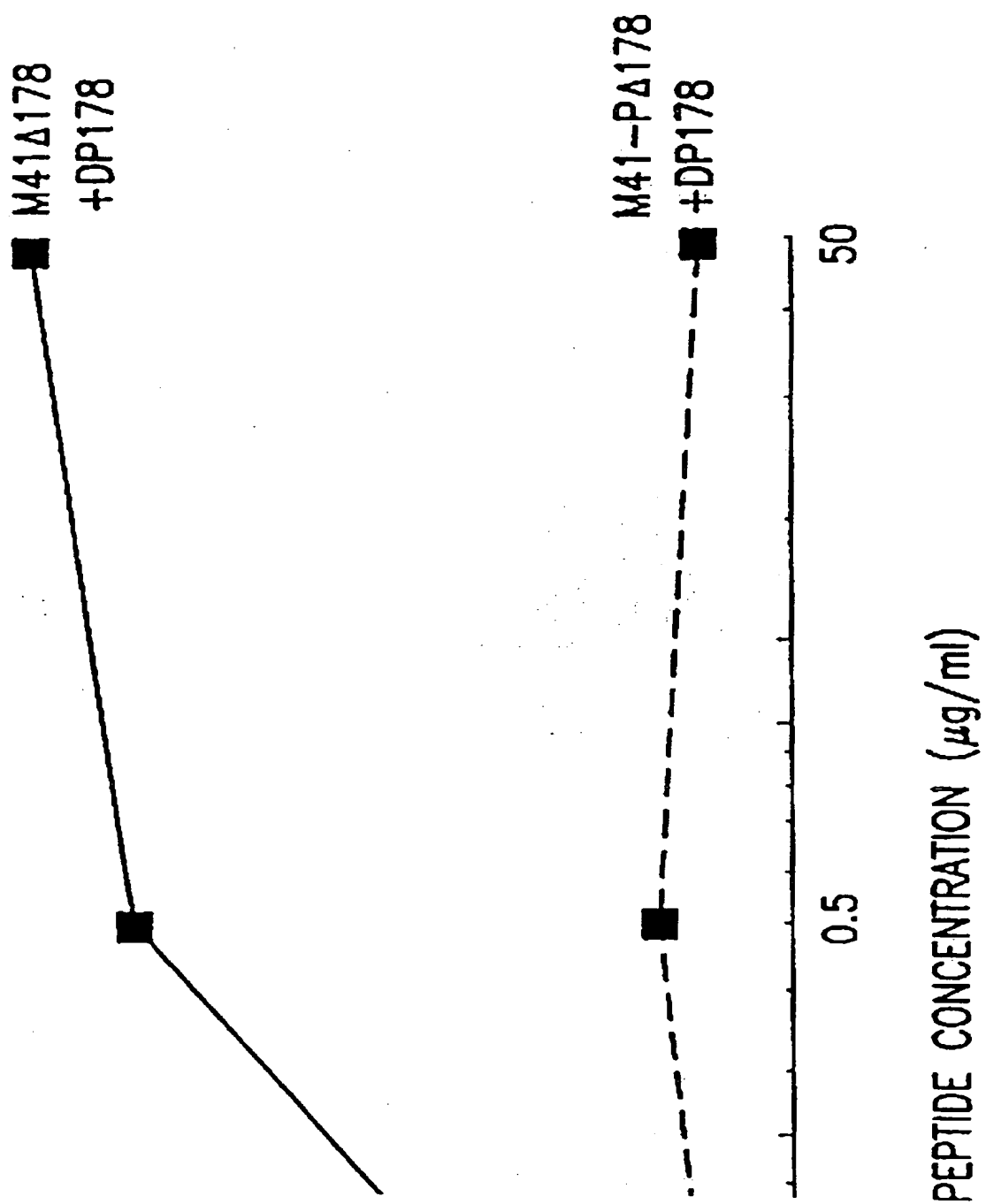
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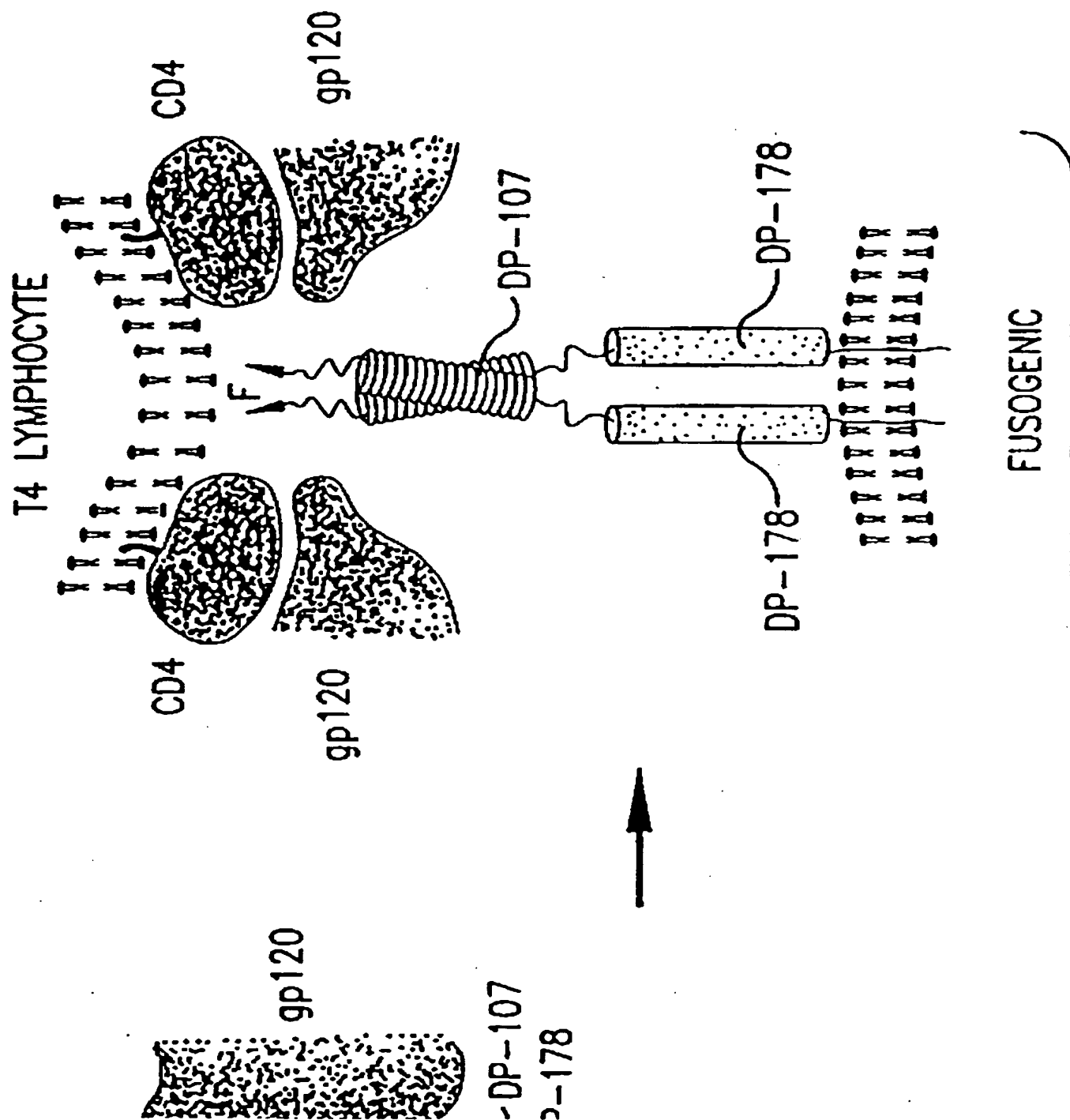
7872-020 (SHEET 9 OF 63)



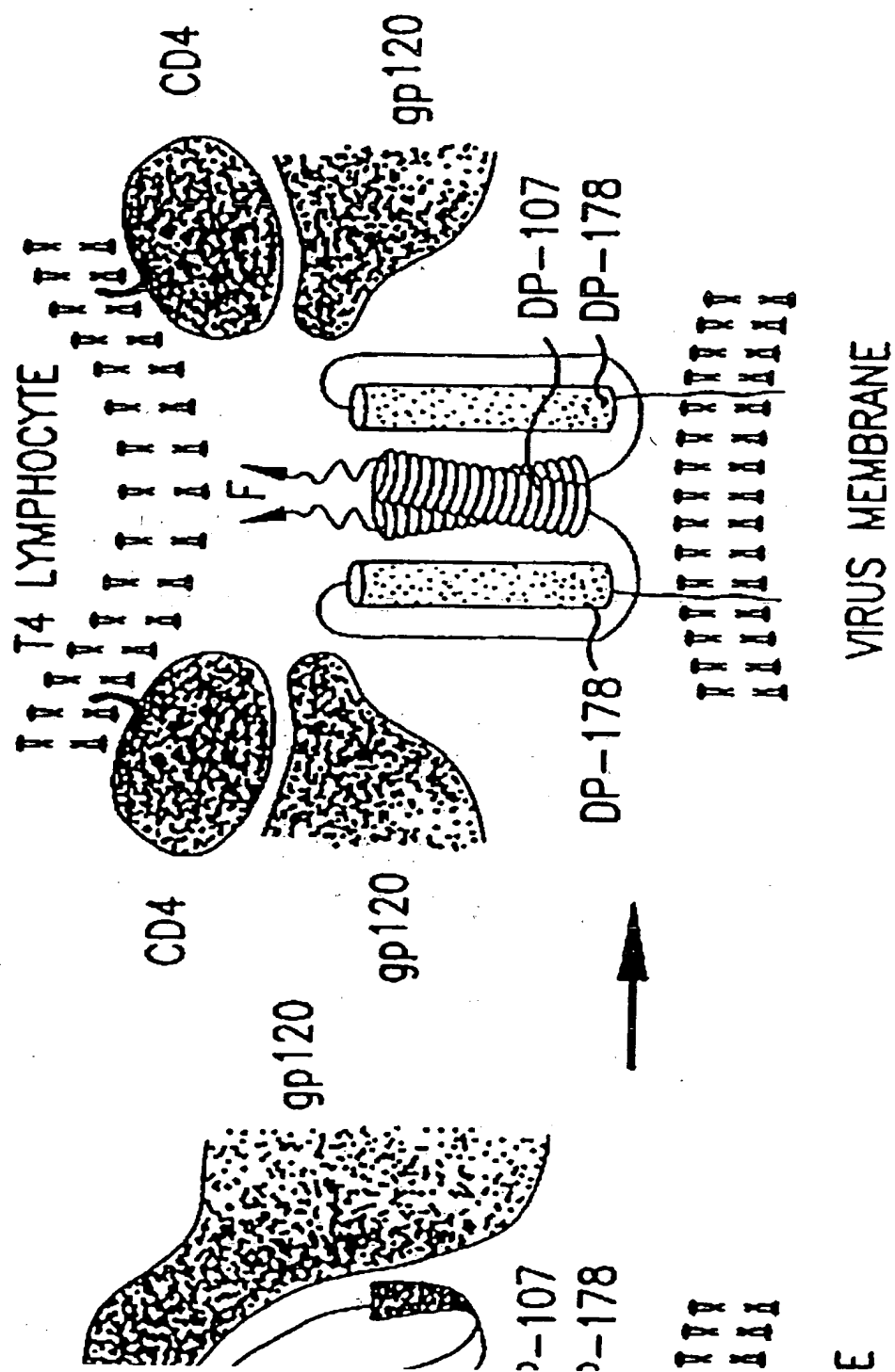
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FUSOGENIC

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Positions										Motifs									
L	S	K	N	A	D	E	N	E	V	A	R	L	K	K	L	[LMNV]	{CFGIMPTW}		
E	D	E	K	S	A	L	Q	T	I	A	N	L	L	K	E	{IKLT}	{CFGHIMPRVWY}		
K	A	Q	N	S	E	L	A	S	I	A	M	L	L	R	E	{AILNV}	{CDFGHILPWY}		
E	K	R	F	S	E	L	K	H	L	E	Q	L	L	R	N	{ELR}	{ACFGMPVWY}		
E	K	E	F	S	E	V	E	G	R	I	Q	D	L	E	K	{FILTV}	{ACFLMPTVW}		

FIG.12

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Positions										Motifs		
D	A	D	A	D	A	D	A	D	A			
Q	Q	L	L	Q	L	L	L	Q	L	[ILQT]	{CFIMPSTY}	
Q	Q	L	L	Q	L	L	L	Q	L	[ILQTV]	{CDFIMPST}	
Q	Q	L	L	Q	L	L	L	Q	L	[ILQTV]	{CDFIMPST}	
Q	H	L	L	Q	L	L	L	Q	L	[EKLNOV]	{CDFKMPSTY}	
Q	H	L	L	Q	L	L	L	Q	L	[EKLNOV]	{CFKMPST}	
Q	H	L	L	Q	L	L	L	Q	L	[EKLNOV]	{CFKMPST}	
E	S	Q	N	Q	Q	E	E	L	L	[EKLOY]	{ACFGMPRVY}	
E	S	Q	N	Q	Q	E	E	L	L	[EKLOY]	{CFGMPRVY}	
E	S	Q	N	Q	Q	E	E	L	L	[EFKLOY]	{CFGMPRVY}	
L	I	E	S	Q	N	Q	Q	E	E	[EILNOSY]	{ACFGMPRVY}	
L	I	E	S	Q	N	Q	Q	E	E	[EILNOSY]	{CFGMPRVY}	
L	I	E	S	Q	N	Q	Q	E	E	[EFILNOSY]	{CFGMPRVY}	

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Sequence	A	D	A	D	A	D	A	D	A	D	A	D	A	D	Motifs
DP-107 (env_hv1bru)L1=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{ILOTV} {CFIMPSTY}
DP-107 (env_hv1bru)L1=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{ILOTV} {CFIMPST}
DP-107 (env_hv1bru)L1=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{ILOTV} {CFIMPST}
DP-107 (env_hv1bru)L2=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{EKLNOV} {CFKAPSVY}
DP-107 (env_hv1bru)L2=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{EKLNOV} {CFKAPS}
DP-107 (env_hv1bru)L2=0	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	{EKLNOV} {CFKAPS}
DP-178 (env_hv1bru)Y1=A	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EKLOY} {ACFGMPRVHY}
DP-178 (env_hv1bru)Y1=A	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EKLOY} {CFGMPRVY}
DP-178 (env_hv1bru)Y1=A	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EFKLOY} {CFGMPRVY}
DP-178 (env_hv1bru)Y1=0	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EILNOSY} {ACFGMPRVHY}
DP-178 (env_hv1bru)Y1=0	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EILNOSHY} {CFGMPRVY}
DP-178 (env_hv1bru)Y1=0	Y	T	S	L	I	H	S	L	I	E	S	Q	N	Q	{EFILNOSHY} {CFGMPRVY}

FIG.13

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Positions												Parent Motif	Hybrid Motif		
A	D	A	D	A	D	A	D	A	D	A	D	[LMNV] {CFGIMPSTW}			
V	Y	H	L	E	N	V	A	R	L	K	K	L			
L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	[ILMNQTV] {CFIMPST}
L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	[ILMNQTV] {CFIMPST}
L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	[ILMNQTV] {CFIMPST}
Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I		[EKL MNQV] {CFIMP}
Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	[EKL MNQV] {CFIMP}
Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	[EKL MNQV] {CFIMP}

FIG. 14

Sequence	Positions																								Parent Motif	Hybrid Motif								
	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D										
GCN4 (gcn4 yeast)	M	K	Q	L	E	D	K	V	E	E	L	L	S	K	N	Y	H	L	E	N	E	V	A	R	L	K	K	L			[LNNV] {CFGIMPSTW}			
DP-107 (env_hv1bru) L1=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I			[ILOI] {CFIMPST}	[ILNQIV] {CFIMP}			
DP-107 (env_hv1bru) L1=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	A	V	E	R	Y	[ILNQIV] {CFIMP}
DP-107 (env_hv1bru) L1=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	A	V	E	R	Y	[ILNQIV] {CFIMP}
DP-107 (env_hv1bru) L2=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I					[EKLNDV] {CFMP}	[EKLNDV] {CFMP}	
DP-107 (env_hv1bru) L2=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	A	V	E	R	Y	[EKLNDV] {CFMP}
DP-107 (env_hv1bru) L2=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	Q	A	R	I	L	A	V	E	R	Y	[EKLNDV] {CFMP}

FIG.14

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Sequence	Positions																Parent Motif	Hybrid Motif															
	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D																	
DP-107 (env_hv1bru) L1=D	N	N	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	A	V	E	R	Y	L	K	D	Q		
DP-107 (env_hv1bru) L2=D	N	N	L	L	R	A	I	E	A	Q	H	L	L	Q	L	T	V	W	G	I	K	Q	L	A	V	E	R	Y	L	K	D	Q	
DP-178 (env_hv1bru) Y1=A	Y	T	S	L	I	H	S	L	I	E	E	S	N	Q	E	K	N	E	O	E	L	L	E	L	D	K	W	A	S	L	W	W	F
DP-178 (env_hv1bru) Y1=D			Y	T	S	L	I	H	S	L	I	E	E	S	N	Q	E	K	N	E	O	E	L	L	D	K	W	A	S	L	W	W	F
FLU LOOP 36	I	E	K	T	N	E	K	F	H	Q	I	E	K	E	F	S	E	V	E	G	R	I	D	L	E	K	Y						

FIG.16

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Sequence	Positions																Parent Motif	Hybrid Motif
	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D		
GCH4 (gcn4 yeast)	MKQL	EDKVE	ELL	SKNY	HL	ENE	VAR	KKL									[LNAV] {CFGIMPTH}	
DP-107 (env_hv1bru)(L1=D)	NNLL	LRAL	IEAQ	HL	LL	QL	TV	WGI	IKOL	QAR	IL	AVE	RYL	KDQ			[ILOTV] {COFIAPST}	
DP-178 (env_hv1bru)(Y1=A)	YTSL	IHS	IL	IEES	QN	QEK	NE	QEL	LE	LD	KWA	SL	WN	WF			[EFKLNQVWY] {CFGAPRY}	
GCH4 (gcn4 yeast)	MKQL	EDKVE	ELL	SKNY	HL	ENE	VAR	KKL									[LNAV] {CFGIMPTH}	
DP-107 (env_hv1bru)(L1=D)	NNLL	LRAL	IEAQ	HL	LL	QL	TV	WGI	IKOL	QAR	IL	AVE	RYL	KDQ			[ILOTV] {COFIAPST}	
DP-178 (env_hv1bru)(Y1=D)	YTSL	IHS	IL	IEES	QN	QEK	NE	QEL	LE	LD	KWA	SL	WN	WF			[EFLNDSWY] {CFGAPRY}	
GCH4 (gcn4 yeast)	MKQL	EDKVE	ELL	SKNY	HL	ENE	VAR	KKL									[LNAV] {CFGIMPTH}	
DP-107 (env_hv1bru)(L2=D)	NNLL	LRAL	IEAQ	HL	LL	QL	TV	WGI	IKOL	QAR	IL	AVE	RYL	KDQ			[EKLNV] {CFKAPS}	
DP-178 (env_hv1bru)(Y1=A)	YTSL	IHS	IL	IEES	QN	QEK	NE	QEL	LE	LD	KWA	SL	WN	WF			[EFKLNQVWY] {CFGAPRY}	
GCH4 (gcn4 yeast)	MKQL	EDKVE	ELL	SKNY	HL	ENE	VAR	KKL									[LNAV] {CFGIMPTH}	
DP-107 (env_hv1bru)(L2=D)	NNLL	LRAL	IEAQ	HL	LL	QL	TV	WGI	IKOL	QAR	IL	AVE	RYL	KDQ			[EKLNV] {CFKAPS}	
DP-178 (env_hv1bru)(Y1=D)	YTSL	IHS	IL	IEES	QN	QEK	NE	QEL	LE	LD	KWA	SL	WN	WF			[EFLNDSWY] {CFGAPRY}	

FIG.17

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Sequence	Positions												Parent Motif	Hybrid Motif
	A	D	A	D	A	D	A	D	A	D	A	D		
GM4 (gen yeast)	MKQL	EDKV	EE	LL	LSKN	YHLE	NEV	AR	KK	LL			[LAW] {CFGLMPTH}	
DP-107 (env_hv1bru) L1=D	NNLL	LRAL	EAQ	HL	QL	TVWG	IKQ	LO	AR	IL	AV	ERY	[ILOTV] {CFGLMPST}	
DP-107 (env_hv1bru) L2=D	NNLL	LRAL	EAQ	HL	QL	TVWG	IKQ	LO	AR	IL	AV	ERY	[EKLNV] {CFGLMPST}	
DP-178 (env_hv1bru) Y1=A	YTSL	IHS	LIE	ESQ	QOEK	NEQ	EL	EL	DK	WA	SL	WN	[EFKLOHY] {CFGLMPST}	
DP-178 (env_hv1bru) Y1=D	YTSL	IHS	LIE	ESQ	QOEK	NEQ	EL	EL	DK	WA	SL	WN	[EFILNSHY] {CFGLMPST}	
C-FOS (fos_human)	TD	TL	QAE	T	DQ	LE	KS	AL	QTE	I	AN	LL	[IKLT] {CFGLMPST}	
C-JUN (lap1_human)	IA	RL	EE	KV	K	TL	KA	QW	SE	LA	ST	AN	[AILWY] {CFGLMPST}	
C-MYC (myo_human)	EQ	KL	I	SE	ED	LL	EK	RR	EQ	LK	HK	LE	[ELR] {ACGLMPST}	
FLU LOOP 36	IE	KT	NE	K	F	H	QI	E	K	E	F	S	[FILTV] {ACGLMPST}	

[AEF IKLWQSTWY] [CFP]
= [CDSP] [CFP]

FIG.18

7872-020 (SHEET 20 OF 63)

P-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(1)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(2)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(3)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(4)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(5)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(6)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(7)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(8)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(9)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-P{(10)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-X{(1,12)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]
 P-X{(13,23)}-[LIV]-{P}(6)-[LIV]-{P}(6)-[LIV]

FIG.19

7872-020 (SHEET 22 OF 63)

Fusion Peptide
 ♡.....FLGFL LGVGSAIAS GVA ♡^{107x178x4}YSKVLHL EGEVNIQKSA

♡P1&12LZIPC+
LLSTNKAYVVS LSNGVSVLTS KVLDLKNYID KQ ♡ ♡ LL ♡PIV NKQ

♡^{107x178x4}
 SC ♡SISNIETV I ♡ EEQQKNNRLLEITREESYNAG ♡ VTTTPVSTMLTINSELLSL

♡P1&12LZIPC+
 ♡ALLMOTIS ♡
 INDM ♡PI ♡TNDQ KKLMSNNVQI V ♡ RQQSYSI ♡ MS IIKEEVLAYV

VQ ♡ LPLYGVID TPCWKLHTSP LCTTNTKEGS NICLTRTD RG WYCDNAGSVS

FFPQAETCKV QSNRVFCDTM NSLTLPSEIN LCNVDIFNPK

YDCKIMTSKT DVSSSVITSL GAIVSCYGKT KCTASNKNRG

IIKTFSNGCDYVSNKGMDTV SVGNTLYYVN KQEGKS LYVK G

♡P7, 12, & 23LZIPC+
 ♡^{107x178x4} ♡ALLMOTIS ♡
 EPIINFYDPLVF ♡PSDE ♡EDASISQYNEKINQSLAF ♡I ♡ RKSDELL ♡

♡Transmembrane Region ♡
HNVNA ♡ GK STTN ♡IMITTIIVIVILLS LIAVGLLLY ♡ C ♡

KARSTPVTLS KDQLSGINNI AFSN

FIG. 21

7872-020 (SHEET 23 OF 63)

Fusion
Peptide ♡ALLMOTIS♡ ♡107x178x4♡
.....ELGELG ♡AAGTAMGAAA ♡TALTYQSOHLLAGILOQQKNLLAAV

♡107x178x4♡
EAG♡ QQM ♡LKLTIWGVKNLNARYTALEKYLEDOARLN♡ AWG♡ CA

♡LYS Coiled-Coil♡
♡ALLMOTIS♡ ♡107x178x4♡
WKQVCHTTVP WQWNNRTPDW ♡NNMT ♡WLE ♡WERQISYLEGNIT

♡107x178x4♡
TOLEEARAQEEKNLD♡ AYQKLSS♡ WSDFWSW♡ FDF ♡SKWLN ♡ILK

♡Transmembrane Region♡
IGFLDYLGIGLRLLYTY♡ YS♡ CIARVRQGYSPSPQIHHP WKGQPDNAEG

PGEGGDKRKN SSEPWQKESG TAEWKSNEWCK RLTNWCSISS IWL YNS

♡ALLMOTIS♡
♡CLTL LVHLRSAFQY IQYGLGELKA AAQEAVVALA RLAQNAGYQIWL♡

ACRSAYRA IINSPRRVRQ GLEGILN

FIG. 22

7872-020 (SHEET 24 OF 63)

Fusion +107x178x4+
 Peptide *LVS Coiled-Coil*
EAG +*SNLNAQAIO
+107x178x4+
 SLRTSLEQSNKAIEEIREATOETVIA* VOGVQDY+ VNNEI+ VP
+ALLMOTIS+
+107x178x4+
 AMQHMSCELVGQRLGLRLLRYYTELLSIFGPSLRD +P6 & 12LZIPC+
 +PISA +*EISIQALIVL
GGEIHKLEKLGYSQSD+ MIALESRGIKTKI+ THVDLPKGF ILSISY
 +P1 & 12LZIPC+
 +PTLSEVKGVIVHRLEAV+ SYNIGSQEWYTTVPRYIATNGYLISNFEDESSCVFVS
 ESAICSQNSL YPMSPLLQQC IRGDTSSCAR TLVSGTMGNK FILSKGNIVA
 NCASILCKCY STSTINQSP DKLLTFIASD TCPLVEIDGA TIQVGGRQYP
LVS Coiled-Coil
+ALLMOTIS+
+P12 & 23LZIPC+
 DMVYEGKVAL G +PAISLD +RL*DYGTNLGNALKIKLDDAKVLI+
+Transmembrane Region+
 DSS+ NOILETYR RS+* SFN +EGSLLSYPIISCTALALLLLYCC+
 K RRYQQTLKQH TKVDPAFKPD LTGTSKSYVR SL

FIG. 23

7872-020 (SHEET 25 OF 63)

Fusion ♡ALLMOTIS♡
 Peptide ♡107x178x4♡
 ♡.....EIGAI IGSVALGVA TAAQITAASA LIQANQNAAN ♡ILRLKESITA

TIEAVHEVTDGLSQLAVA ♡ VG KM ♡ QQFVNDQFNNTAQELDCIKITQQV

♡ALLMOTIS♡
 GVELNLYLTEITTV FGPQITSPAL ♡TQLTIQALYNAGGNMDYLLTKLGVG

♡P1 & 12LZIPC♡
 NNQLSSLIGSGLIT GN ♡ ♡PILYDSQT QLLGIQVTLP SVGNLNNMRATYLET

LSVST TKGFASALVP KVVTVQVGSVI EELDTSYCIE TDLDLYCTRI VTFFMSPGIY

SCLNGNTSAC MYSKTEGALT TPYMTLKGSV IANCKMTTCR CADPPGIISQ

♡ALLMOTIS♡
 ♡107x178x4♡
 NYGEAVSLID RHSCN ♡ ♡VLSLD GITRLSGEF DATYQKNISI LDSQVIVTG

♡LVS Coiled-Coil♡ ♡Trans-
 NLDISTELGNV NNSISNALDK LEESNSKLDK VNVKLTSTSA ♡LIT* YIA

membrane Region ♡
LTALSLVCGILSLV ♡ ♡ LACYLMY ♡ KQKAQQKTLLWLGNNTLGQMRATTKM

FIG. 24

7872-020 (SHEET 26 OF 63)

Fusion ♡ALLMOTIS♡
 Peptide ♡107x178x4♡ *LVS_Coiled-Coil*
EEGGV ♡IG ♡TIALG *YATSAQITAAYALVEAKOARSDIEKLKE

AIRDTNKAVQSVSIGNLIVAIKSVQ* DYVNKE♡ ♡ IVPSIARLGCEAAG

♡ALLMOTIS♡
 ♡107x178x4♡
 LQLGIALTQH ♡♡YSELTNIEGDNIGSLOEKGIKLOGIASLYRTNITE♡♡

IFTTSTVDKYDIYDLLFTESIKVRVIDVDLNDYSITLQVRL ♡P5 & 12LZIPC♡
 ♡PLLTRLNLTQIYR

VDSISYNI+ QNREWI+ PLPSHIMTKGAFLGGADVKECIEAFSSYIC

PSDPGFVLNHEMESCLSGNISQCPRTVVKSDIVPRYAFVNGGVVANCITT

TCTCNGIGNRINQPPDQGVKIITHKECNTIGINGMLFNTNKEGTLAFYTP

♡ALLMOTIS♡
 ♡107x178x4♡
 ♡P6 & 23LZIPC♡
 NDITLNNNSVALD ♡PIDI ♡SIELN ♡KAKSDLEESKEWI+ RRSNOKL÷

♡Transmembrane Region♡
 DSIGNWHOSSTT ♡IIIV♡ LIM IILEIINVT II♡ IIAVKYY♡ R

IQKRNRVDQN DKPYVLTNK

FIG. 25

7872-020 (SHEET 27 OF 63)

Fusion

Peptide

.....GLEGAI AGFIENGWEGMIDGWYGFRHQNSEGTG

107x178x4

ALLMOTIS

LYS Coiled-Coil

*Q *AADLKST *QAADQINGKLNRYIEKTNEKTHQIEKEESEVEGRIO

DLEKYVEDTKIDL* WSYNAELLVALENOHTI* DLT* DSEMKNLFETR

RQLRENAEEMGNGCFKIYHKCDNACIESIRNGTYDHDVYRDEALNNRFQIKG

VELKSGYKDWILWISFAISCFLLCVLLGFIMWACQGRGNIRCNICI

FIG. 26

7872-020 (SHEET 28 OF 63)

FIG. 27A

REV F2	AV	Parted E 88 (u g/m)	CD
T-143	++	39	++
T-143	++	31	++
T-144	+	114	+
T-143	++	40	+
T-148	+	281	+
T-147	+	204	+
T-148	+	354	+
T-148	+	336	+
T-148	+	342	+
T-148	+/	116	+
T-148	+/	117	+
T-148	+	280	+
T-144	+/	118	+
T-148	+	253	+

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Peptide #	Sequence	AVG. IC50 (XTT) ug/ml
T-12	VVSLSHNOVSVLTSKVLDLKKNYIDKQLL	>500
T-13	LLSTHNKAVVBSLNGVSVLTSKVLDLKKNY	>500
T-15	VLLHLEQEVNKKIKSALLSTHNKAVVBSLNG	>500
T-19	LLSTHNKAVVBSLNGVSVLTSKVLDLKKNY	>500
T-28	ASQVAVS KVLHLEQEVNKKIKSALLSTHNKAVVBSLNGQV	>500
T-29	SOVAVS KVLHLEQEVNKKIKSALLSTHNKAVVBSLNGQ	327
T-30	VLLHLEQEVNKKIKSALLSTHNKAVVBSLNGVSLTSK	328
T-69	VVBSLSHNOVSVLTSKVLDLKKNYIDKQLL	292
T-70	VNKKIKSALLSTHNKAVVBSLNGVSVLTSK	349
T-68	NQCKKLMSSNNVQIVRQQBYBIMZIIKEE	>500
T-578	ISNIEITVIEFQCKMHRLLLEITREFBVMAQVITPVBS	>100

FIG. 27D

7872-020 (SHEET 34 OF 63)

[illegible]

FIG. 29A

7872-020 (SHEET 35 OF 63)

HPV3 DP107-Jane Walke		AVG IC50	
T-42	A T B A G G I T A A V A L V E A K Q A R S D I E K L K E A I R D T M K A		643,000 upHR
T-43	A A V A L V E A K Q A R S D I E K L K E A I R D T M K A		613,000 upHR
T-39	A A V A L V E A K Q A R S D I E K L K E A I R D T M K A V Q S V Q S B		770,000 upHR
T-38	A K Q A R S D I E K L K E A I R D T M K A V Q S V Q S B		700,000 upHR
T-40	A K Q A R S D I E K L K E A I R D T M K A V Q S V Q S B I O M L I V A		54,798 upHR
T-44		I E K L K E A I R D T M K A V Q S V Q S B I O M L I V A	235,140 upHR
T-45		I R D T M K A V Q S V Q S B I O M L I V A I K B V Q D Y	481,000 upHR
T-46		A V Q S B V Q S B I O M L I V A I K B V Q S V Y M K E I V	641,000 upHR
T-362	Fused 184	L K E A I R D T M K A V Q S V Q S B I O M L I V A I K B	137,634 upHR

29B

7872-020 (SHEET 37 OF 63)

[illegible]

FF-6. 30 B

7872-020 (SHEET 38 OF 63)

Fusion ♥ALLMOTI5♥
Peptide ♣107x178x4♣
.....RNKRGVFLGFLGFLATAGSAMGAAS ♣♥XXXXAQSRLLAGIVQQQQQ

LLDVVKRQOELLRLTVWGTKNLOTRVTAIEKYLKDQAQL♣NAWG♥ CAF

♥ALLMOTI5♥
*LVS Predicted Coiled-Coil
RQVCHTTVPWPNASLTPDW *NND ♥TWQEWERKVDFFLEENITALLEEAQIQQ

♣107x178x4♣
EKNMY ♣ELOKLNSWD* VF♥ GNXXXXXXXXXXXXXXXXXXXXXXXXXXXXX♣

IYIVMLAKLRQGYRPVFSSPPSYFQXTHTQQDPALPTREGKEGDGGEGGGNSSWP

WQIEYIHF

FIG. 31

7872-020 (SHEET 39 OF 63)

MTRRRVLSVVVLLAALACRLGAQTPEQPAPPATTVQPTATRQQTSPFRVCELSSHGDLFRFSSD

▲107x178x4▲

IQCPSTGTRENTHEGLLMVFKDNIIPYSF ▲KYRSYTKIVTNLLIYNGWYADSVTNRHE▲

EKFSVDSY ETDQMDTIYQ CYNVVKMTKD GLTRVYVDRD GVNITVNLKP TGGLANGVRR
YASQTELYDA PGWLIWYRT RTTVNCLITD MMAKSNSPFD FFVTTTGQTV EMSPFYDGKN
KETFERADS FHVRTNYKIV DYDNRGTNPQ GERRAFLDKG TYTLWKLEN RTAYCPLQHW
QTFDSTIATE TGKSIHFVTD EGTSSFVTNT TVGIELPDAF KCIEEQVNKT HEKYEAVQD
RYTKGQEAIT YFITSGGLLL AWPPLTPRSL ATVKNLTEL TPTSSPPSSP SPPAPSAARG
STPAAVLRRR RRDAGNATTP VPPTAPGKSL GTLNNPATVQ IQFAYDSLRR QINRMLGDLA
RAWCLEQKRQ NMVLRELTKI NPTTVMSSY GKAVAAKRLG DVISVSQCVP VNQATVTLRK
SMRVPGSETM CYSRPLVSFS FINDTKTYEG QLGTDNEIFL TKKMTEVCQA TSQYYFQSGN

▲107x178x4▲

SIHVYNDYHH FKTIELDGIA TLQTFISLNT ▲SLIENIDEASLELYSRDEORASNVFD *LE▲

LVS Predicted Coiled Coil

TM Potential

GIFREYNFQAQNIAGLRKDLDNAVSN* GRNQ FVDGLGELMDSLGSVG QSITN

▲P12LZIPC▲

TM Potential

TM Potential

LVSTVGGLFSSLVSGFISF FK N ▲PFGGMLILVLVAGVVILVISL▲ TRRTRQMS

QQPVQMLYPG IDELAQQHAS GEGPGINPIS KTELQAIMLA LHEQNQEQR AAQRAAGPSV

ASRALQAARDRFPGLRRRRY HDPETAAALL GEAETEF

FIG. 32

7872-020 (SHEET 40 OF 63)

MMDPNSTSED VKFTPDPYQV PFVQAFDQAT RVYQDLGGPS QAPLPCVLWP VLPEPLPQQQ

LTAYHVSTAP TGSWFSAPQP APENAYQAYA APQLFPVSDI TQNQQTNQAG GEAPQPGDNS

TVQTAAAVVF ACPGANQGGQ LADIGVPQPA PVAAPARRTR KPQQPESLEE CDSELEI

@DNA Binding@ ▲107x178x4▲ +Dimerization+
@KRY KNRVASRKCRK ▲FK@ Q +LLOHYREVAAAKSSENDRLRLLLKQ▲

MCPSLDVD+ SI IPRTDVLHE DLLNF

FIG. 33

7872-020 (SHEET 41 OF 63)

Fusion

Peptide

FAG

▼ALLMOTIS▼

LVS Coiled-Coil

▼VVLGAALGVATAAQITAGIALHQSMLE*NSQAIDNLRASLETTN

QAIEAIRQAGQEMI* LAVQGVQDYINN▼ ELIPSMNQLSCDLIGQKLGKLLRYTT

P23LZIPC

P6,12LZIPC

107x178x4

▼ALLMOTIS▼

EILSLFGPSLRD *PISA *▼EISIQALSIALGGDINKV* LEKLGYSGGDL*

P1,12LZIPC

LGILES* RGIKARI▼ THVDTESYFIVLSIAY *PTLSEIKGVIVHRLEGV* SY

NIGSQEWYTTVPKYVATQGYLISNFDDESSCTFMPEGTVCSQNALYPMSPLLQECL

RGSTKSCARTLVSGSFGNRFILSQGNLIANCASILCKCYTTGTIINQDPDKILTYIAA

P23LZIPC

P12LZIPC

▼ALLMOTIS▼

LVS Coiled-Coil

DHCPVVEVNGVTIQVGSRRYPDAVYLHRIDLGP *P ▼IS*LERLDVGTNLGN

Transmembrane Region

AIAKLEDAKELL* ESSDQI*L* RSMK *GLSSTSIVYILI▼ AVCLGGLIGIP

ALICCC* RGRCNKKGEQVGMSRPGLKPDLTGTSKSYVRSL

FIG. 34

7872-020 (SHEET 42 OF 63)

Pre S1 and Pre S2

MGQNLSTSNPLGFFPDHQLDPAFRANTANPDWDFNPNKDTWPDANKVGAGAFG
LGFTPPHGGLLGWSPQAQGILQTLPANPPPASTNRQSGRQPTPLSPPLRNTHPQAM
QWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTASPLSSIFSRIGDPALN

Major Surface Antigen (HBs)

Fusion

Peptide

✦P12 & 23LZIPC✦

MENITSG FLG ✦PLL VLQAGFFLLTRILTI✦ PQSLDSWWTSLNFLGGTTVCLG

✦P12 & 23LZIPC✦

QNSQSPTSNHSPTSCPPTC ✦PGYRWMCLRRFIIFLLCLIFLLVLLDYQGML✦

PVCPLIPGSSTTSTGPCRTCMTTAQGTSMPSCCCTKPSDGNCTCIPISSWAFGKF

✦Transmembrane Region✦

LWEWASARFSWLS ✦LLVPEVQWFEVGLSPTVWLSVI✦ WMMWYWGPSL

✦Transmembrane Region✦

✦YSILSPFLPLLPIFFCLWVYI✦

FIG. 35

7872-020 (SHEET 43 OF 63)

Fusion ♥ALLMOTI5♥ ♠107x178x4♠
Peptide *LVS Coiled Coil
AIQLIPLFVG LGI ♥TTAVSTGAAGLGVS ♠IT *QYTKLSHQLISDV

QAISSTIQDLQDQVDSLAEVVLQ* NRRGLDLLTAE♠ QGGI♥

CLALQEKCCFYANKSGIVRDKIKNLQDDLERRRRQLIDNPFWTSFHG

FLPYVMPLLGPLLCLLVLSFGPIIFNKLMTFIKHQIESIQAKPIQVHYH

Transmembrane Region

RLEQEDSGGSYLTLT.....????????????????????????????????.....

FIG 36

7872-020 (SHEET 44 OF 63)

MKAQKGFTLI ELMIVVAIIG ILAAIAIPQ

♠107x178x4♠

♥ALLMOTI5♥

♠♥YODYTARTOVTRAYSEVSALKTAAESAILEGKEIVSSA♠ T♥

PK DTQYDIGFT

♠107x178x4♠

♥ALLMOTI5♥

♠♥ESTLLDGSQKSGKSOIQVTDNODGTVELVATLGKSSGS♠ AIKGAVITVSR♥

KNDGV WNCKITKTPT AWKPNYAPAN CPKS

FIG. 37

7872-020 (SHEET 45 OF 63)

MNTLQKGFTL IELMIVIAIV GILAAVALPA YQDYTARAQV

SEAILLAEGQ KSAVTEYYLN HGIWP

♠107x178x4♠

♥ALLMOTIS♥

♠♥KDNTSAGVASSSSIKGKYVKEVKVENGVVTTAT♠

MNSSNVNKEIQGKKLSLWAKRQDGSVKW♥

FCGQP VTRNAKDDTV TADATGNDGK IDTKHLPSTC RDNFDAS

FIG. 38

7872-020 (SHEET 46 OF 63)

MKKTLLGSLI LLAFAAGNVQA DINTETSGKV TFFGKVVENT

CKVKTEHKNL SVVLNDVGKN SLSTKVNTAM PTPFTITLQN

CDPTTANGTA NKANKVGLYF Y

♠107x178x4♠

♥ALLMOTIS♥

♠♥SWKNVDKENNETLKN EOTTADYATNVNI♠

QLMESNGTKAISVVGKETE♥

DF MHTNNGVAL NQTHPNAHI SGSTQLTTGT NELPLHFIAQ

YYATNKATAG KVQSSVDFQI AYE

FIG. 39

7872-020 (SHEET 47 OF 63)

MNKKLLMNFF IVSPLLLATT ATDFTPVP

♠107x178x4♠

♥ALLMOTIS♥

♠♥LSSNQIHK TAKASTNDNIKDLLDWYSSGSDTETNS♠♥

EVLDNSL GSMRIKNTDG SISLIIFPSP YYSAPFTKGE KV

♠107x178x4♠

♠DLNTKRTKKSOHTSEGTYIHFQISGVT♠

N TEKLPTPIEL PLKVKVHVKD SPLKYG

♣P12LZIPC♣

♣PKFDKKQLAISTLDFEIRHQLTQI♣

HGLYRSSDKT GGYWKITMND GSTYQSDLSK KFEYNTEKPP

INIDEIKTIE AEIN

FIG. 40

7872-020 (SHEET 48 OF 63)

♥ALLMOTI5♥

MKKTAFILLL FIALTLTTSP L ♥VNG

♠107x178x4♠

LVS Predicted Coiled-Coil

S ♠EKSEEINEKDLRKKSELOARNALSNLROIY* YNEKAITENKESDD♠

QFLENTLL ♥FKG FFTGHPW

♠107x178x4♠

♠YNDLLVDLGSKDATNKYKGKKVDLYGAY♠

YGYQCAGGTPNKTACMYGGVTLHDN NRLTEKKVP INLWIDGKQTTV

♣P12LZIPC♣

♣PIDKVKTSKKEVTVQELDL♣ QARHYLHGK FGLYNSDSFGGKVQ

♣P12LZIPC♣

RGLIVF HSSEGSTVS YDLFDAQGQY ♣P DTLRIYRDN KTINSENLHI♣

DLYLYTT

FIG. 41

7872-020 (SHEET 41 OF 63)

MKKTAF T L L L F I A L T L T T S P L ♥ALLMOTIS♥
♥VNGS

♠107x178x4♠

♠EKSEEINEKDLRKKSELOGTALGNLKOIYYNEKAKTENKESHD♠ Q♥

FLQHTILFKG FFDH SWYND LLVDFDSKDI VDKYKGKKVDLYGAYY

GYQC AGGTPNKTAC MYGGVTLHDN NRLTEKKVPINLWLDGKQNTV

♠107x178x4♠

♥ALLMOTIS♥

♠P12LZIPC♠

♠P ♥L ♠ETVKTNKKNVTVOELDLOARRYL♠ QEKYNLYN♠

SDVFDGKVQR♥ GLIVF HTSTE

♠P23LZIPC♠

♠PSVNYDLFGAQGQYSNTLLRIYRDNKTINSENMI♠ DIYLYTS

FIG. 42

7872-020 (SHEET 50 OF 63)

MKNITFIFFILLASPLYANGDRLYRADSRPPDEIKRFRSLMPRGNEYFDRGT

♥ALLMOTIS♥

♥QMNINLYDHARGTQTGFVRYDDGYV

♠107x178x4♠

♠STSLSLRSAHLA GOYILSGYSLTIYIVI♠ ANMFNVNDVISVY♥

SP HPYEQEVSA L GGIPYSQIYG WYRVNFGVID ERLHRNREYR

DRYYRNLNIA PAEDGYRLAG FPPDHQAWRE EPWIHHAPQG

CGDSSRTITG DTCNE

♥ALLMOTIS♥

♥ETQNLSTIYLREYQSKVKRQIFSDYQSEVDIYNRIRDEL♥

FIG. 43

7872-020 (SHEET 51 OF 63)

MMFSGFNADY EASSSRCSSA SPAGDSLSTY HSPADSFSSM

GSPVNAQDFC TDLAVSSANF IPTVTAISTS PDLQWLQPA

LVSSVAPSQT RAPHFPGVPA PSAGAYSRAG VVKMTGGRA

LVS Predicted Coiled-Coil

QSIGRRGKVE QLSPEEEER RIRRE *RNKMA AAK

♠107x178x4♠

♥ALLMOTIS♥

♥CRNRREL ♠TDTLQAETDOLEDEKSALOTEIANLLKEKEKL♥

EFILAAH R* PACKIPDDL GFPEEMSVAS LDLTGGLPEV

ATPESEEAFT LPLLNDPEPK PSVEPVKSIS SMELKTEPFD

DFLFPASSRP SGSETARVP DMDLSGSFYA LPLLNDPEPK

PSVEPVKSIS SMELKTEPFD DFLFPASSRP SGSETARVP

DMDLSGSFYA GSSSNPSSD SLSSPTLLAL

FIG. 44

7872-020 (SHEET 52 OF 63)

SGWESYYKTEGDEEAEEEEQEENLEASGDYKYSGRDSLIFLVDASKA
MFESQSEDELTPFDMSIQCIQS VYISKIISDRDLLAVVFYGTEDKNS
VNFKNYVLQELDNPGAKRILELDQFKGQQGQKRFQDMMGHGSDY
SLSEVLWVCANLFSVDQFKMSHKRIMLFTNEDNPHGNDSAKASRAR
TKAGDLRDTGIFLDLMHLKPKGGFDISLFYRDIISIAEDED

♠107x178x4♠

♥ALLMOTIS♥

LVS Predicted Coiled-Coil

♥LRVH *FEE ♠SSKLEDLLRKVRAKETRKRALSRCLKLKNKDIV* ISV

GIYNLVQKAL♥ KPPPIKLYRETN♠ EPVKTTRTFNTSTGGLLLPSDTKR

SQIYGSRQIILEKEETEELKRFDDPGLMLMGFKPLVLLKKHHLRPSLFVYPE
ESLVIGSSTLFSALLIKCLEKEVAALCRYTPRRNIPPYFVALVPQEEELDDQK
IQVTPPGFQLVFLPFADDKRKMPFTEKIMATPEQVGKMKAIVEKLRFTYRS
DSFENPVLQQHFRNLEALALDLME

♣P12LZIPC♣

♣PEQAVDLTLPKVEAMNKRL♣ GSLVDEFKELVYPPDYNPEGKVTKR
KHDNEGSGSKRPKVEYSEEELKTHISKGTLGKFTVPMLEACRAYGLKSG
LKKQELLEALTKHFQD

FIG. 45

7872-020 (SHEET 53 OF 63)

GGGALSPQHSAVTQGSIIKNKEGMDAKS

♠107x178x4♠

♥ALLMOTIS♥

♥♠LTAWSRTLVTFKDVEVDFTREEWKLLDT♠ AQQIVYRNV

MLENYKNLVSLGYQLT♥ KPDVILRLEKGEEPWLVEREIHQETHPD
SETAFEIKSSVSSRSIFKDKQSCDIKMEGMARNDLWYLSLEEVWKCR
DQLDKYQENPERHLRHQLIHTGEKPYECKECKGKSFSRSSHLIGHQKT
HTGEEPYECKECKGKSFSWFSHLVTHQRTHTGDKLYTCNQCGKSFVH
SSRLIRHQRTHTGHKPYECPECKGKSFRQSTHLILHQRTHVVRVPYECN
ECKGSYSQRSHLVVHHRIHTGLKPFECKDCGKCFSSRSHLYSHQRT
TGEKPYECHDCGKSFSQSSALIVHQRIHTGEKPYECCQCGKAFIRKN
DLIKHQRIHVGAETYKCNQCGIIFSQNS

♣P23LZIPC♣

♣PFIVHQIAHTGEQFLTCNQCGTALVNTSNLIGYQTNHI♣ RENAY

FIG. 46

7872-020 (SHEET 57 OF 63)

HIV-1 BU 178 Constructs, Mutations, Truncations									
Construct	Y10	PK	Membrane	Adapt	MAI	MAI	MAI	MAI	MAI
Y1									
Y2									
Y3									
Y4									
Y5									
Y6									
Y7									
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Y125									
Y126									
Y127									

Fig. 49B

7872-020 (SHEET 58 OF 63)

[illegible]

F-16 49C

7872-020 (SHEET 59 OF 63)

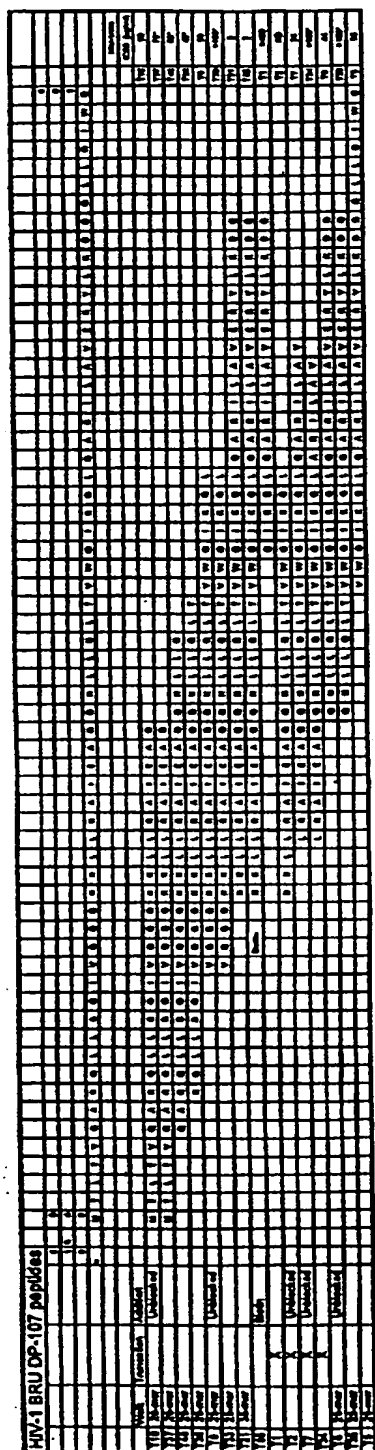


Fig. 50

7872-020 (SHEET 60 OF 63)

Residue	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534	1535	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546	1547	1548	1549	1550	1551	1552	1553	1554	1555	1556	1557	1558	1559	1560	1561	1562	1563	1564	1565	1566	1567	1568	1569	1570	1571	1572	1573	1574	1575	1576	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	1598	1599	1600	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615	1616	1617	1618	1619</
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P-L-L-V-L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-G-T-T-V-C-L-G-Q-N-S-Q-S-P220

P-L-L-V-L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T
L-L-V-L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T
L-V-L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V
V-L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C
L-Q-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L
-A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G
A-G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G-Q
G-F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G-Q-N
F-F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G-Q-N-S
F-L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G-Q-N-S-Q
L-L-T-R-I-L-T-I-P-Q-S-L-D-S-W-W-T-S-L-N-F-L-G-G-T-T-V-C-L-G-Q-N-S-Q-S

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/16733

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : C07K 7/04, 14/025, 14/16; C12N 9/94, 9/96, 9/98, 9/99
US CL : 530/324; 424/184.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 530/324, 325, 326, 327, 328, 329; 424/184.1, 185.1, 186.1, 187.1, 188.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MEDLINE, AIDSLINE, APS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, Volume 89, Number 21, issued November 1992, Wild et al, "A Synthetic Peptide Inhibitor of Human Immunodeficiency Virus Replication: Correlation Between Solution Structure and Viral Inhibition", pages 10537-41, see entire document.	1-3, 9, and 10 ----- 4-8 and 11-15

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

Special categories of cited documents:	
* "A" document defining the general state of the art which is not considered to be of particular relevance	* "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention
* "B" earlier document published on or after the international filing date	* "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
* "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	* "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
* "O" document referring to an oral disclosure, use, exhibition or other means	* "Z" document member of the same patent family
* "P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

28 MARCH 1996

Date of mailing of the international search report

09 APR 1996

Name and mailing address of the ISA/US
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/16733

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, Volume 91, Number 26, issued December 1994, Wild et al, "Propensity for a Leucine Zipper-Like Domain of Human Immunodeficiency Virus Type 1 gp41 to Form Oligomers Correlates With a Role in Virus-Induced Fusion Rather Than Assembly of the Glycoprotein Complex", pages 12676-80, see entire document.	1-3, 9 and 10 ----- 4-8 and 11-15
X ----- Y	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, Volume 81, Number 24, issued December 1984, Collins et al, "Nucleotide Sequence of the Gene Encoding the Fusion (F) Glycoprotein of Human Respiratory Syncytial Virus", pages 7683-87, see pages 7683 and 7685.	1 and 4 ----- 9 and 11
X ----- Y	VIROLOGY, Volume 204, Number 2, issued 01 November 1994, Bousse et al, "Regions on the Hemagglutinin-Neuraminidase Proteins of Human Parainfluenza Virus Type-1 and Sendai Virus Important for Membrane Fusion", pages 506-514, see pages 506 and 510-513.	1 and 5 ----- 9 and 12
X ----- Y	JOURNAL OF VIROLOGY, Volume 67, Number 9, issued September 1993, Wang et al, "Ion Channel Activity of Influenza A Virus M2 Protein: Characterization of the Amantidine Block", pages 5585-94, see pages 5585-86.	1 and 6 ----- 9 and 13
X ----- Y	JOURNAL OF VIROLOGY, Volume 67, Number 5, issued May 1993, Lazinski et al, "Relating Structure to Function in the Hepatitis Delta Virus Antigen", pages 2672-80, see pages 2672-73 and 2678.	1 and 7 ----- 9 and 14
P, Y	JOURNAL OF EXPERIMENTAL MEDICINE, Volume 182, Number 2, issued August 1995, Suzuki et al, "Viral Interleukin 10 (IL-10), the Human Herpes Virus 4 Cellular IL-10 Homologue, Induces Local Anergy to Allogenic and Syngeneic Tumors", pages 477-486, see entire document.	1, 8, 9, and 15